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ART. I.—*Statistics of Pulmonary Consumption in the Cities of Boston, New York and Philadelphia, for thirty Years; with Remarks.* By GEO. HAYWARD, M.D.

IT is undoubtedly true that more persons die of pulmonary consumption, than of any other disease. It prevails to a greater extent in some countries than in others, being far more frequent in temperate regions, than in those in a very high, and perhaps it may be added, or low latitude. "It has been calculated," says Sir James Clark, "by the late Dr. Young, Dr. Woolcombe, and others, from the best data which the bills of mortality afford, that in Great Britain and Ireland, consumption causes one fourth part of the deaths that occur from disease."

It is not, however, so prevalent, probably, in the United States as in some parts of Europe, though we have not the means of making any exact calculation upon a large scale. But we have a right to infer this from the fact, that the proportion of deaths from consumption to the whole number is not so great in Philadelphia, New York and Boston, as it is in Great Britain and Ireland; and it can hardly be doubted that it abounds more in these cities than in the country generally.

It is well ascertained that this formidable disease was on the increase in Great Britain from the beginning to the middle of the last

century, and that it remained stationary from that time to the year 1837, the period when the calculation was made. This increase was greatest among the middling and upper classes of society; in fact, the lower classes, it was thought, did not suffer more from it than formerly; which was perhaps to be attributed to an improvement in their mode of living. This increase is the more remarkable, as the mortality from other diseases has lessened in a striking degree in the same period of time. In the year 1700, the number of yearly deaths in every 1000 inhabitants in the city of London, from all diseases, was 31, and only 4 of these were from consumption; while in 1821, the number from all diseases was only 19 in a 1000, and $6\frac{1}{5}$ of these were from consumption. From that period to the year 1837, the proportion of deaths from these two sources remained the same.

It is very desirable to ascertain, if possible, if a similar state of things exists in our own country; but unfortunately we have not the means of deciding this with perfect accuracy. Bills of mortality are not universally kept in the United States, and in those places in which they are, they cannot always be relied on with entire confidence. An approximation to the truth, therefore, is all that can be made, and with this view, I have examined with some degree of care the bills of mortality of the cities of Boston, New York and Philadelphia, for thirty years, from 1811 to 1840 inclusive. In the following tables will be found the whole number of deaths for each year from every cause, and also the number from consumption during this period in these cities.

Statement of Deaths in the City of Boston for thirty Years.

Year.	Whole number of Deaths.		From Consumption.
1811	742		221
1812	677		190
1813	786		193
1814	727		153
1815	854		190
1816	904		180
1817	907		231
1818	971		138
1819	1070		175
1820	1103		220
Total for 10 years,	8741	From consumption,	1891
1821	1420		208
1822	1203		166
1823	1154		184
1824	1297		246
1825	1450		220
1826	1254		231
1827	1022		178
1828	1233		217
1829	1221		203
1830	1125		193
Total for 10 years,	12379	From consumption,	2046
1831	1424		203
1832	1761		246
1833	1475		240
1834	1554		246
1835	1914		208
1836	1770		233
1837	1843		212
1838	1920		256
1839	1863		222
1840	1972		240
Total for 10 years,	17496	From consumption,	2306

Statement of Deaths in the City of New York for thirty Years.

Year.	Whole number of Deaths.		From Consumption.
1811	2524		595
1812	2553		669
1813	2299		562
1814	1974		572
1815	2507		618
1816	2739		678
1817	2527		574
1818	3265		591
1819	3176		577
1820	3516		625
Total for 10 years,	27080	From consumption,	6061
1821	3542		715
1822	3241		624
1823	3444		683
1824	4341		736
1825	5018		843
1826	4973		820
1827	5181		829
1828	5181		906
1829	5094		880
1830	5537		974
Total for 10 years,	45552	From consumption,	8010
1831	6363		1033
1832	10359		1415
1833	5746		1251
1834	9082		1471
1835	7082		1437
1836	8009		1514
1837	8732		1458
1838	8053		1225
1839	7953		1315
1840	8474		1296
Total for 10 years,	79853	From consumption,	13415

Statement of Deaths in the City of Philadelphia for thirty Years.

Year.	Whole number of Deaths.		From Consumption.
1811	2249		369
1812	2017		339
1813	2223		216
1814	2041		274
1815	1943		347
1816	2225		434
1817	2107		349
1818	2609		396
1819	2979		459
1820	3189		446
Total for 10 years,	23582	From consumption,	3629
1821	2161		438
1822	3334		488
1823	4372		536
1824	4284		576
1825	3539		519
1826	3845		587
1827	3659		523
1828	3971		581
1829	4001		638
1830	3948		636
Total for 10 years,	37114	From consumption,	5522
1831	4939		673
1832	6699		681
1833	4440		650
1834	5073		636
1835	5666		717
1836	5357		755
1837	5202		748
1838	5462		725
1839	5113		708
1840	4949		777
Total for 10 years,	52900	From consumption,	7070

The most striking fact brought to light by these tables, is the great decrease of deaths by consumption in these cities. This decrease has been great in all, but greater in Boston than in either of the others; and this is not only a relative, but an absolute decrease, for the mortality has been somewhat more during the last ten years than it was thirty years ago. At that time the deaths were about 22 to every 1000 inhabitants; and now they are nearly, if not quite, 23 to 1000. It will be seen by these tables, that in Boston during the first ten years, the whole number of deaths was

	8741	By consumption,	1896	being 1 in	4.622
Whole No. 2d 10 yrs.	12379	"	2046	" 1 in	6.050
" 3d "	17406	"	2396	" 1 in	7.587
" for 30 yrs.	38616	"	6243	which is equal	

to 1 death by consumption in 6.185 of the whole number.

In New York,

Whole No. 1st 10 yrs.	27,080	By consumption,	6061	being 1 in	4.451
" 2d "	45,552	"	8010	" 1 in	5.686
" 3d "	79,853	"	13415	" 1 in	5.952
" for 30 yrs.	152,480	"	27486	" 1 in	5.547

In Philadelphia,

Whole No. 1st 10 yrs.	23,582	By consumption,	3629	being 1 in	6.498
" 2d "	37,114	"	5522	" 1 in	6.721
" 3d "	52,900	"	7070	" 1 in	7.482
" for 30 yrs.	113,596	"	16221	" 1 in	7.003

Thus it appears, that during the whole period embraced in these tables, Philadelphia has suffered less from consumption than either of the other cities; the average number of deaths from that disease for the whole time being as 1 in 7.003 of the whole number; while in Boston they were as 1 in 6.185; and in New York as 1 in 5.547. But during the last ten years, Boston has enjoyed the greatest exemption. From 1831 to 1840 inclusive, the deaths in Boston from consumption were only 1 in 7.587, in Philadelphia 1 in 7.482, and in New York 1 in 5.952.

It is supposed by some persons that there has not been an actual decrease of consumption during the last thirty years, or at any rate, not so great an one as at first view there may seem to have been; and they explain the fact, that a less number of deaths is reported from this disease, from an improvement in diagnosis which has taken

place, by means of which the precise nature of the malady which causes death is more accurately ascertained. But if this were true, it would not explain the comparative improvement that has occurred in Boston in regard to consumption; for it cannot be pretended that the physical signs, by means of which we are guided in determining the nature of some diseases, especially those of the chest, are not as well understood by the physicians of New York and Philadelphia as by those of this city. Besides, there has been no diminution of deaths from this disease in London for the last fifty years, and no one can question the skill in diagnosis of the medical men of the British metropolis.

I believe, however, on the contrary, so far as Boston is concerned, for I have not examined sufficiently with this view the tables of the other cities to speak with confidence, that this improvement in diagnosis has had an opposite effect. Many cases which terminate fatally and are now known to be consumption, were formerly not well understood, and were included among the deaths from "Unknown Diseases," "Decay of Nature," "Debility," "Indigestion," &c. On the other hand it cannot be denied, that some few probably occur, which would formerly have been reported as consumption, that are now ascertained to be some other affection; but these I am satisfied do not balance the other class of which I have just spoken.

It is well known that the practice of examining the chest by means of auscultation and percussion was not general, and the use of the physical signs as a means of detecting disease was not employed to any extent in this country, before the year 1830; yet the decrease of consumption began before that time.

It will be seen, by examining the bills of mortality of the city of Boston, that there has been a very striking and uniform improvement as to pulmonary consumption since the year 1811. By the United States census of 1810, Boston contained 33,250 inhabitants; in 1820, 43,298; in 1830, 61,392; and in 1840, 93,452. In 1811, when the population had not probably increased at all from the preceding year, as it was a period of great depression in commercial affairs, the whole number of deaths was 742, of which 221 were of consumption; while in 1840, with a population nearly three times as great, and with nearly three times as many deaths, there were only 19 more fatal cases of consumption, the whole number being but 240; not quite 1 in 8 of all the deaths, and not 3 in 1000 inhabitants.

Another reason, and one to which I have already alluded, against the opinion that the decrease of deaths from consumption in the bills of mortality of Boston is owing to the improvement in diagnosis, is the fact, that since this improvement has taken place, there is a great falling off in the deaths from "unknown diseases;" many cases in former years that were included under this head are probably now classed under that of consumption, as their precise nature is more accurately ascertained. From 1821 to 1830 inclusive, the whole number of deaths was 12,379, and of these 1917 were from unknown diseases; while from 1831 to 1840 inclusive, the whole number was 17,496, and from unknown diseases only 1337; that is, that with an increase of nearly one third in the number of deaths, there was a decrease of nearly one third from unknown diseases.

It must be evident then, I think, to any one who will examine the subject, that it is impossible to explain the great diminution in the number of deaths by consumption, as reported in the bills of mortality of the city of Boston, without admitting that there is an actual decrease of that disease. To what this decrease may be owing, it is not perhaps easy to determine. It is probably, however, to be referred to a combination of causes, rather than to any single one. These I should say were mainly the great improvements that have taken place in living during the last thirty years; to the increased comforts of life, which are now enjoyed by every class of the community. People are better fed, better clothed, live in more comfortable houses, indulge less in excesses of all kinds, and pay more attention to personal cleanliness, than they formerly did. They adopt better and more effectual means to protect themselves from the vicissitudes of temperature, and the low rate at which cotton fabrics can be obtained, and the consequent general use of them, have no doubt contributed essentially to this desirable result.

It is well known that a cold, moist and variable climate acts not only as a predisposing, but as an exciting cause also of consumption; and unless the system is protected by proper food and suitable clothing by day and by night, many of the inhabitants of such a climate will fall victims to pulmonary disease. There is no greater error, I believe, than to suppose that the body can be hardened by exposure to the atmospheric changes without suitable precaution. It would be as reasonable to imagine that it could acquire the power of resisting any degree of heat or any of the powerful chemical agents,

as that it could without proper protection withstand the influence of the elements.

Our only hope of lessening the mortality from consumption, is by using all possible means of prevention; for it is not pretended by those whose opinion is of any value, that this disease in a confirmed state is within the control of remedies. It behooves us then to ascertain, if we can, what these means are, and to use them with diligence.

Boston, October, 1842.

Art. II.—*Cases of Tracheotomy.*

The following cases, read before the New Hampshire Medical Society by Dr. Twitchell, of Keene, were put into our hands by a gentleman who had obtained the permission of the author to publish them, with the request that we would insert them in our Journal.

Eds.

In the great variety of operations which the surgeon is called upon to perform, perhaps there is no one more appalling to spectators, or which requires more decision and presence of mind in the operator, than that of bronchotomy or tracheotomy. And when performed for the removal of a foreign substance from the larynx or trachea, there is no case in which the patient receives more immediate and manifest relief, and in which the skill and dexterity of the surgeon is more duly appreciated. Yet the operation itself, if properly performed, is not a dangerous one.

Case I.—August 5th, 1827, was called to visit a child aged 22 months, and found her with symptoms of suffocation. The report given by her parents was, that about two hours before, she had been playing with some common field beans, had put some of them into her mouth, and in the act of laughing, they supposed one of the beans had slipped into the windpipe. She was immediately seized with a difficulty of breathing, with occasional paroxysms of suffocation. Upon attentive examination, and listening to the manner of her breathing, I came to the conclusion that the bean was in the trachea, near its bifurcation, and probably lodged on or over the left bronchial tube, as the lungs on that side of the chest did not expand in respiration.

The necessity of an operation was manifest, and was proposed as the only means of rescuing the child from immediate danger. Her parents would not consent to it, and as the foreign substance appeared to be fixed or stationary in the situation it then was in, it was thought not proper to urge it at that time. The attendants were directed to watch the child attentively, and if the bean appeared to come up into the upper part of the trachea or larynx, and strangle her, to endeavor to force it back again by rubbing or pressing the throat with considerable force.

I then left the patient and was absent two or three hours. Upon my return, I was met at the door by some one saying, "the child was dying." I found her with a livid countenance, tossing herself about in various directions, and gasping for breath. By pressing and rubbing the larynx and trachea, the bean appeared to descend again to its former situation. An operation was no longer objected to, as it was evident she must have immediate relief, or death would be the consequence.

Preparations were soon made. The child was placed upon a table on her back, with a roll of cotton under her neck, and her head bent backward over it, so as to stretch the integuments on the fore part of the neck, which was very short and fleshy. An incision was made through the skin and cellular substance, extending from near the thyroid cartilage to the sternum, continuing the dissection on the fore part of the trachea. Some small bloodvessels were divided, but the hemorrhage was not so profuse as to delay the operation. The thymus gland, apparently very large, was next observed extending up the trachea till it came in contact with the thyroid gland. It was carefully detached, and the assistants, with some difficulty, succeeded, with small blunt hooks, in holding the two glands asunder sufficiently to denude the trachea, through which an incision was then made nearly half an inch in length. The air came hissing through the wound. A pair of small forceps were passed into the trachea and up through the glottis, by which it was ascertained that the foreign substance was not above the opening. Then a pair of common dressing forceps were introduced and the blades separated so as to hold apart the sides of the slit. They were but just placed in that situation, when the bean, during some little struggle of the child, came up, and was instantly seized with the forceps and removed. The patient was turned face downwards to prevent the blood from getting into the trachea. She immediately breathed easy and natural. The glands

and integuments closed over the slit so that no air escaped through it, and within five minutes she was sleeping. After letting her rest for a short time, the wound was sponged clean and accurately brought together and retained by strips of adhesive plaster; a small compress placed upon each side, and secured by a roller passed several times round the neck. She was then put to bed and rested quietly through the night. The next day, August 6, when I visited the child, found her running about the house, apparently well.

August 8th.—Removed the dressings for the first time. The wound had completely adhered by the first intention, and there had been no febrile action after the operation.

August 12th.—The dressings were discontinued, and the child was in perfect health.

Case II.—March 1st, 1830. A child aged one year and sixteen days, laboring under a slight catarrhal affection or influenza, while creeping upon the floor, put a piece of broken earthen cup into the mouth, and in the act of coughing or laughing, as stated by the parents, it slipped into the throat, and produced, in their language, "a choking, or an inability to swallow and a difficulty of breathing." Within half an hour after the accident, I saw the child; his breathing was somewhat hoarse and hissing, but his friends said, "not much more so than before the accident happened." He could not be induced to swallow any thing, but when a little water was put into his mouth, after holding it a short time, he ejected it. A probang was passed into the œsophagus, after which he swallowed readily, and the breathing was less impeded. Some castor oil was administered, and mucilaginous drinks directed.

March 2.—Nine o'clock, A. M., eighteen hours after the accident, the father of the child came running to me and said he was suffocating, or, to use his expression, "was choking to death." When I arrived they had the child in their arms carrying it about the room in nearly an erect posture. He was restless, tossing his arms and endeavoring frequently to change his position. His countenance was livid, his breathing very much impeded, and sounded hissing and husky, and was only in gasps. It was evident that the foreign substance was in the larynx or trachea, and that he must be relieved immediately by an operation, or death would ensue. Preparations were quickly made, and with the assistance of Dr. J. B. Dausman, I proceeded in the operation. The child was placed upon a table on his back, a small pillow rolled hard and placed transversely under

his neck, and his head bent back over it so as to elevate his chin and make the integuments tense, and the cartilages of the larynx and trachea prominent.

An incision two inches in length was made through the integument. The thyroid and guttural veins were seen, very turgid. They were carefully detached sufficiently to be pushed aside, and were not divided. Continuing the dissection on the fore part of the trachea, an artery, the thyroidea anastimotica, was divided. At first it bled very freely, so that we were obliged to suspend the operation a few minutes. The bleeding soon ceased; an incision was then made through the trachea, half an inch in length. The air came freely through the wound, and the child breathed with more ease. After delaying a short time, that he might in some measure recover from his exhausted and suffocated state, a small pair of forceps were passed through the slit in the trachea upwards towards the glottis. It immediately came in contact with the piece of earthen, the sound of which was distinctly heard by the bystanders. Every attempt to seize it with the forceps proved ineffectual. A probe was then curved and passed into the trachea, and endeavors made to dislodge it, but did not succeed—during which the child struggled much, and at length became so much exhausted that the spectators thought him about expiring. A large probe was then introduced, and with it the foreign substance was pushed up through the glottis into the pharynx, and the child swallowed it. Afterwards a bougie was passed up through the larynx and glottis, with which it was ascertained that all obstruction was removed.

In the various attempts made to dislodge this substance, it was pretty well ascertained that it was sharp and angular, and being so firmly fixed that it required considerable force to push it into the pharynx. The probability was that the delicate and sensible membrane lining the larynx and upper part of the trachea was very much lacerated and wounded. Under these circumstances it was thought advisable not to close the wound, that respiration might go on by the air passing through the slit in the trachea, in case that the subsequent inflammation should be so great as to close the glottis and prevent it passing that way. Some superficial dressings were applied, but a portion of the incision was left open and naked. The child was then put into bed, and although very much exhausted, his respiration was tolerably free and easy. In the evening he was very quiet—had slept some, and had taken some light nourishment. The air had occasionally passed through the wound.

March 3d.—There was considerable febrile action—the breathing was rather more laborious—some portion of the air passed through the incision at almost every breath. A cathartic of castor oil was administered. In the evening the oil had purged two or three times, and he was resting quietly, breathing as in the morning.

March 4th.—The external parts appeared considerably swollen and inflamed. In respiration, the air passed wholly through the incision in the trachea. The glottis was apparently closed by the inflammation, and he could make no vocal sound. Six grains of calomel was to be given, followed with castor oil to purge freely.

March 5th.—The cathartic had operated several times, but the symptoms continued much as they were on the 4th.

March 6.—Suppuration had commenced in the wound, and he breathed at intervals rather laboriously. The air continued to pass wholly through the opening in the trachea. He could neither cry aloud nor make any noise.

March 7th.—Suppuration was copious—he coughed a good deal, and when coughing, some air was forced through the glottis, carrying with it pus and mucus.

March 8th, 9th.—He appeared to be failing—took but little nourishment. Suppuration continued very copious—pus very thick and glutinous, and when any of it was carried with the air through the wound in the trachea, it produced violent fits of coughing and strangulation. At intervals, that is, after he had expelled a good deal of pus and mucus during a paroxysm of coughing, he breathed more freely, and mostly through the glottis—could cry aloud and articulate some words.

March 10th.—His breathing was more laborious, with apparent inability to cough and expectorate. Granulations had sprung up in the wound, and appeared to impede the passage of the air, and either from inability or disinclination he had ceased taking any nourishment, and his mouth and jaws were covered with aphthæ, for which a gargle of borax and honey was prescribed.

March 11th.—In the morning a messenger came in great haste and said "the child was suffocating." I found him breathing very laboriously and croupy. Countenance livid, with the expression of great anxiety—unable to make any sound. Granulations had nearly filled up the wound. The incision in the throat was mostly covered by them, and the trachea itself in that part appeared very much contracted, which was ascertained by passing a probe through the

opening; but very little air appeared to pass into the lungs any way. In this situation we concluded the indication was, if possible, to dilate the stricture of the trachea, and to clear it of the tenacious, muco-purulent secretion with which it appeared to be filled. With that view I passed a pretty large sized urethra bougie into the trachea, and first passed it up through the glottis, and afterwards passed it downwards towards the lungs. It produced considerable coughing, and a good deal of mucus and pus was discharged into the mouth, and either ejected or swallowed, and some came through the wound. This appeared to give immediate relief—it restored his voice and he breathed with much more ease. A decoction of seneca and squills, prepared after the formula for Coxe's Hive Syrup, was directed to be given in doses of a teaspoonful every half hour, till it produced vomiting, and the gargle of borax and honey to be continued. In the evening the child had vomited several times, and had two or three alvine discharges—breathed more freely and took some nourishment.

March 12th.—Much improved—respiration was natural and easy, but little air escaped through the wound, and that only when he coughed, cried, or was agitated. He took sufficient food, and the aphthous appearance of the mouth was principally removed.

March 14th.—He had gained rapidly. He was sitting up in bed, diverting himself with play things, and breathed perfectly natural.

March 10th. He had continued to improve. The opening in the trachea was closed, the wound filled up and nearly cicatrized. Discontinued my visits.

April 4th.—Called to see my patient—found him in perfect health. The cicatrization of the wound had been complete for several days.

Case III.—March 30th, 1830. Was called to visit S. W., aged four years and four months. Met in consultation with Drs. Carpenter, E. Hatch, and Bliss, at 8 o'clock, A. M. The report given by the parents of the child was, that the evening before, she was amusing herself with some large kidney-shaped garden beans. She had some of them in her mouth, and by some means one of them slipped into the windpipe. She was immediately seized with a difficulty of breathing which had continued ever since, with occasional violent suffocating attacks. At the time of our consultation the breathing was hissing and husky, and by auscultation we found that the right bronchial tube was obstructed, and concluded that the bean was lodged near the bifurcation of the trachea. An operation was immediately determined upon as the only means of affording the relief the case so urgently required.

Preparations were soon made, and the child placed upon a table as in the preceding cases. An incision was made through the integuments two inches in length. The dissection was continued till the fore part of the trachea was laid bare. No bloodvessel of importance was divided, and there was no hemorrhage to impede the operation. A longitudinal incision was then made into the trachea, rather more than half an inch in length. The air passed freely through the wound. The bean soon made its appearance, presenting its broad or flat side to the slit in the trachea, the sides of which would not separate sufficiently to let it pass. Endeavoring to seize it with a pair of forceps, it slipped from my grasp, was forced up, and stuck fast in the larynx or glottis, which it so completely filled, that it prevented any air passing that way. An attempt was made with a large probe to force the bean up through the glottis; but it was so large it would not pass without too much violence. The child at that time struggled considerably, and the assistants who held apart the sides of the incision, lost their hold. The integuments of the neck, which was very fleshy, immediately closed over the opening in the trachea, and stopped respiration entirely. The lungs collapsed, the child straightened herself, her countenance became livid, her eyes motionless and glassy. The spectators declared she was dead. The sides of the incision were instantly separated and held asunder by the assistants, and the blades of a pair of dressing forceps were introduced into the slit in the trachea, and with them the sides were kept apart, but no air passed—respiration did not return—the child was still motionless. I called for a tube or some instrument to inflate the lungs, but the agonized feelings of the friends and the agitation of the attendants and spectators prevented their heeding my call, or rendering any assistance. I then seized a bougie which was at hand, passed it through the wound into the trachea downwards towards the lungs, at the same time directed an assistant to press the chest in different directions with his hands. The bougie appeared to irritate and produce some little motion in the chest, and upon removing it some little air appeared to rush into the lungs. The motion of the chest increased, respiration was gradually restored, and life and action returned. She swallowed a few drops of camphorated spirit. I then passed a pair of small forceps up towards the glottis, seized the bean and removed it.

She immediately breathed free and easy. As soon as she had recovered a little from her exhaustion, the wound was sponged clean

and dressed with strips of adhesive plaster, and she was put to bed, and was soon asleep.

The next day, March 31st, 1 o'clock, P. M., there was considerable febrile excitement, with croupy breathing. A cathartic of calomel and jalap was given, and followed by sulphate of magnesia, which purged freely and gave relief. A solution of tartarized antimony was directed to be given occasionlly till the febrile symptoms were removed.

April 2d.—The wound was dressed, and very little air escaped through the incision. It had principally adhered by the first intention.

April 7th.—The incision was entirely healed, and the child in perfect health.

ART. III.—*The Influence of Temperature upon Mortality.* By CHARLES E. WARE, M.D.

THE following statistics were drawn up some years since for the purpose of seeing if there was any correspondence between the average temperature of different years, or the different seasons of different years, and the mortality of the same years. They were laid aside with the idea that at some future time they might be extended and made more complete. But as neither the time nor the opportunity have as yet offered, they are now presented, in their present condition, for the examination of those who are interested in such inquiries.

The tables were made out from the records of mortality kept in the city of Boston. It was at first intended, besides making out general tables, also to have made out some with reference to particular diseases. But upon examination it was found that it would be impossible to do this with any degree of satisfaction. The city records are kept in so loose a manner in this respect, and the titles there given are so uncertainly indicative of the true character of the disease, that results obtained from them could make no pretensions to accuracy, and would in consequence be of little value, not worth the time spent in obtaining them. Notwithstanding these objections, however, tables were made out, not with reference to particular diseases, but with reference to the general character of diseases during the warmer and colder months, viz. with reference to the prevalence of thoracic or abdominal diseases at these seasons. With

this object in view, these tables were confined to children under two years of age, because within this period children are particularly subject to the influence of teething upon disease, and we have an opportunity of observing a period when one great source of mortality is most distinctly in operation; and also, because under two years the age of the patient is given almost without exception in months, thus enabling us to feel more certain of the accuracy of the records. This last circumstance is in a measure true of the deaths at a more advanced age, as 4 or 5; but as we advance, the exceptions become more frequent, and the records in proportion uncertain. The table including the whole number of deaths in the city, is made out from the city bills of mortality.

The population of the city from 1830 to 1835, increased more than one quarter. From 1832 to 1837, it probably did not increase less. Of course it was necessary to make an allowance for this. In order to get at the population of those years intervening between the years in which the census was taken, it was necessary to calculate from the census, supposing the increase of each year to be in the same proportion; it could only be then an approximation. It was found that it would be more convenient and more exact, in contrasting the tables, if the population of each year was raised to 80,000, the population of the last year, increasing the mortality of each year in the same proportion. This was done by obtaining a common multiplier for each year. The tables therefore give the representative, not the actual mortality of the city.

The table giving the average temperature, was made out from records kept by Dr. Hale, of this city, according to Fahrenheit's scale.

The number of Deaths in each Month of those under 2 years.							The Whole number of Deaths in the City.						
	1832.	1833.	1834.	1835.	1836.	Total.		1832.	1833.	1834.	1835.	1836.	Total.
Jan.	44	33	42	39	47	205	Jan.	186	133	157	119	163	758
Feb.	35	36	40	35	25	171	Feb.	138	135	127	122	128	650
Mar.	46	32	33	35	38	184	Mar.	173	120	124	126	141	684
Apr.	45	36	30	35	21	167	Apr.	200	135	125	114	113	687
May	54	19	27	20	29	149	May	200	106	114	113	97	630
June	30	23	26	23	27	129	June	167	101	110	105	136	619
July	30	36	37	25	30	158	July	146	116	121	124	115	622
Aug.	16	75	64	90	80	325	Aug.	131	178	160	228	164	861
Sept.	60	98	90	94	127	469	Sept.	189	212	182	229	196	1009
Oct.	65	51	51	80	70	317	Oct.	226	146	151	226	201	950
Nov.	50	34	35	80	46	245	Nov.	198	147	153	251	148	897
Dec.	68	42	35	61	38	244	Dec.	177	154	154	192	168	845
Total.	545	515	510	617	578	2765	Total.	2143	1693	1678	1949	1770	9233

The first table presents the number of deaths of children under two years of age. In this the greatest number of deaths is found to occur each year in September, with one exception, viz. 1832, when there were 8 more deaths in December, and 5 more in October than in September. The whole number of deaths in September for the 5 years, is 469. The smallest number of deaths in any month for the 5 years, is in June, viz. 129. The difference between this and September is 340. From September the number of deaths decreases almost regularly as we proceed through October and November till we arrive at June. The only deviation from the regular decrease between September and June is in March, when there were 13 more deaths than in February. This irregularity may be accidental, since in 1833 and 1834 the number of deaths is less than in February, and in 1835 it is the same. In July there is a small increase in the number of deaths over June, viz. 29. In August there is a great increase, the difference between July and August being 160.

The second table presents the whole number of deaths in the city. Here the average for the 5 years is found to correspond almost exactly with the average of those under 2 years. But with regard to the mortality in particular years there is a considerable difference. For instance, in the years 1835 and 1836, the table of the whole mortality gives an extraordinary increase in the number of deaths in 1835, while in 1836 it is not greater than usual. Among those under 2 years, there is not more than the ordinary mortality in 1835, while there is a very great mortality in 1836. It is however to be considered, that a considerable proportion of those dying over 2 years of age would properly come under the diseases of childhood, and would be more or less subject to the influence of those causes which are especially productive of disease at that period of life. No contrasts, therefore, between these tables in this regard can be very accurate.

Although the course of mortality through the year is thus uniform in the sum of the 5 years, there is no single year of the 5, which taken by itself, will present the same uniformity. In some years there is a very great deviation. In the years 1832 and 1836, according to the table of the whole mortality, there was a greater mortality in October than in September. And in each of these years there was a less mortality in July than in June. In 1832 there was a greater mortality in April and May than in January, February or March.

The number of deaths in each month of those under 2 years.						The average Temperature of the 5 years, 1832, '33, '34, '35, '36.						
	1832.	1833.	1834.	1835.	1836.	Total.	1832.	1833.	1834.	1835.	1836.	Total.	Range.
Jan.	44	33	42	39	47	205	26.6	30.6	23.6	25.7	25.7	26.5	7
Feb.	35	36	40	35	25	171	26.3	24.6	32.5	24.01	30.3	27.6	8
Ma.	46	32	33	35	38	184	35.3	31.3	36.4	29.3	30.3	32.4	6
Apr.	45	36	30	35	21	167	39.6	46.4	45.2	40.6	43.09	43.01	7
May	54	19	27	20	29	149	51.2	57.3	51.5	53.7	52.9	53.3	6
Jun.	30	23	26	23	27	129	63.03	61.6	63.3	63.8	58.4	62.5	5
July	30	36	37	25	30	158	66.5	70.1	73.8	71.3	68.6	70.4	7
Au.	16	75	64	90	80	325	70.3	66.7	67.3	67.4	65.1	67.4	5
Sep.	60	98	90	94	127	469	60.6	60.8	62.03	57.7	60.1	60.3	5
Oct.	65	51	51	80	70	317	51.3	50.1	48.	52.4	44.2	49.2	8
Nov.	50	34	35	80	46	245	40.4	37.4	38.2	39.6	35.6	38.3	5
Dec.	68	42	35	61	38	244	30.3	31.1	27.1	21.8	28.2	27.6	10
Tot.	545	515	510	617	578	2765	46.8	47.2	47.3	43.1	45.2		

Comparison of one year with another.—If we compare the number of deaths in each year of those under 2 years of age, with the temperature of each year, we find some apparent correspondence between the greater number of deaths and the greater degree of cold. The year 1835 was the coldest, colder by 2 degrees than 1836. The number of deaths was 39 greater. 1836 was 1 degree colder than 1833. The number of deaths was 33 greater. 1832 was 1 degree colder than 1833 and 1834. The mortality was 30 greater than the one, and 35 greater than the other.

The whole number of Deaths in the City for each Month—beginning Jan.						The average monthly Temperature of the 5 years, 1832, '33, '34, '35, 36,—beginning January.						
1832.	1833.	1834.	1835.	1836.	Total.	1832.	1833.	1834.	1835.	1836.	Total.	Range.
186	133	157	119	163	758	26.6	30.6	23.6	25.7	25.7	26.5	7
138	135	127	122	128	650	26.3	24.6	32.5	24.01	30.3	27.6	8
173	120	124	126	141	684	35.3	31.3	36.4	29.3	30.3	32.4	6
200	135	125	114	113	687	39.6	46.4	45.2	40.6	43.09	43.01	7
200	106	114	113	97	630	51.2	57.3	51.5	53.7	52.9	53.3	6
167	101	110	105	136	619	63.03	61.6	63.3	63.8	58.4	62.5	5
146	116	121	124	115	622	66.5	70.1	73.8	71.3	68.6	70.4	7
131	178	160	228	164	861	70.3	66.7	67.3	67.4	65.1	67.4	5
189	212	183	229	196	1009	60.6	60.8	62.03	57.7	60.1	60.3	5
226	146	151	226	201	950	51.3	50.1	48.	52.4	44.2	49.2	8
198	147	153	251	148	897	40.4	37.4	38.2	39.6	35.6	38.3	5
177	154	154	192	168	845	30.3	31.1	27.1	21.8	28.2	27.6	10
2143	1693	1678	1949	1770	9233	46.8	47.2	47.3	43.1	45.2		

In examining the table of the whole mortality we find a similar correspondence, with the exception of the year 1832, in which, although warmer than 1835 or 1836, and colder than 1833 or 1834,

the mortality was very much greater than in either. The mortality of each month of 1832, except the last 5, was greater than the same month of either of the other years. There is nothing corresponding to this in the average temperature. It neither indicates the extremes of heat nor cold.

In 1835, the number of deaths in the last 5 months of the year was very much greater than in any other year. There does not seem to be any correspondence between this and the temperature. Some months were warmer and some colder than usual, and the average range was not greater than in other years. In children under 2 years, the increased number of deaths was owing to diseases within the chest. This season the measles prevailed. The number of deaths from them was 188; whereas in the year following it was only 31, and in the year previous only 1. The mortality from them commenced in July, and became very considerable in August. It was in July that the excessive mortality of this year commenced. The deaths from measles continued through this year and the early part of the following, when most of the cases which are reported in 1836 occurred.

The mortality from abdominal diseases during the summer months of 1835, among children under two years, was not greater than usual, and was much less than the year following, while the mortality from thoracic diseases in these months was very much greater than usual. In this year there were 141 deaths from lung fever; in the year before, only 65; in the year following, 81. The probability is that the increased number of deaths from lung fever may be ascribed to the measles, since a large proportion of those who are reported as dying of measles, die of pneumonia, supervening upon measles. Many also would be reported as dying of lung fever, although measles was the original disease. If we strike out the deaths from measles, from this year and the following, we find the mortality of this year was only 22 the greatest. In 1832 both the measles and scarlet fever prevailed. There were 70 deaths from measles, and 149 from scarlet fever. I have examined the city records as far back as 1813, and during that interval the greatest number of deaths from scarlet fever in any one year previous to 1831, was in 1820, viz. 9. In 1831 there were 58 deaths. Between 1831 and 1837, the smallest number of deaths from scarlet fever was in 1836, viz. 16. These are important circumstances to be noticed, particularly the periodical occurrence of measles. Its regular appearance, or perhaps rather severity, every

few years, and its comparative absence or mildness during the interval, almost precludes the possibility of its having any thing to do with the temperature. The following is the mortality from measles from 1813 to 1837.

1813.	'14.	'15.	'16.	'17.	'18.	'19.	'20.	'21.	'22.	'23.	'24.	'25.	'26.	'27.	'28.	'29.	'30.	'31.	'32.	'33.	'34.	'35.	'36.
0	0	21	6	0	1	0	0	149	3	0	2	77	10	0	0	72	13	2	70	2	1	188	31

With scarlet fever it is somewhat different. Since 1831 it has been prevalent. And it seems, during the 5 years which we are considering, as if it had been resident among us as one of our common diseases, and as if it might have been subject during that period to the same causes which influence the mortality from other diseases. If it were necessary to make an allowance for these diseases, it would be difficult, indeed impossible, to do it in such a way as to give exactness. We might strike out the actual mortality from each of these diseases, but we could not strike out the mortality from other diseases having their origin in or being in some way dependent upon these. If we strike out the deaths from measles and scarlet fever from 1832, the mortality of that year will still be greater than any other year, provided we make the same deduction from them also.

Table of the Mortality and average Temperature of July, Aug., Sept.				Table of the Mortality and average Temperature of Jan., Feb., March.			
	Whole.	Under 2.	Temp.		Whole.	Under 2.	Temp.
1832	466	106	65.8	1832	497	125	29.4
1833	506	209	65.9	1833	388	101	28.8
1834	464	191	67.8	1834	408	115	30.7
1835	581	209	65.5	1835	367	109	26.3
1836	475	237	64.6	1836	432	110	28.7

Comparison of Seasons.—The above tables present the mortality for the 3 summer months, July, August and September, and for the 3 winter months, January, February and March. In the summer months we find the greatest number of deaths among the whole population to have occurred in 1835, which was 1 degree warmer than 1836. The difference in the mortality of these 2 years was 106. The least mortality was in 1834. This year was nearly 2 degrees warmer than any other. The mortality was 117 less than in 1835.

Among those under 2 years, the greatest mortality was in 1836, the coldest year. In 1833 and 1835 the mortality was equal, 28 less than in 1836. These years were 1 degree warmer than 1836. In 1834 the mortality was 18 less than in 1833 and 1835. The temperature was nearly 2 degrees warmer. In 1832 the mortality was

85 less than in 1834, the temperature was 2 degrees warmer, and was within a fraction of a degree the same as in 1833 and 1835. In 1836 the great mortality was owing to the diseases in the abdomen. In 1833 it was the same. In 1835 it was owing to both abdominal and thoracic diseases.

In the winter months, January, February, and March, we find the greatest mortality was in 1832. It was the least in 1835. The difference is 130. The average temperature was 3 degrees lower in 1835 than in 1832. In 1834 the mortality was 89 less than in 1832. The average temperature was 1 degree higher. In 1833 and 1836 the mortality was in the one 109, in the other 65, less than in 1832. The temperature of these 2 years was within a fraction of a degree the same, and in both 1 degree lower than in 1832. Among those under 2 years, the greater mortality was in 1832 and 1834; these were the two warmest seasons. The least mortality was in 1833. The average temperature of this season was 2 degrees higher than in 1835, in which the mortality was 9 more. According to these tables the correspondence between the mortality and the temperature does not seem to be very striking. In the summer seasons, so far as there is any correspondence, the least mortality is in the warmest seasons. In the winter months there is a still less apparent correspondence, but such as it is, it would give the least mortality to the colder seasons.

A Comparison of Single Months.—The whole mortality. In 5 out of the 12 months, the greatest mortality occurs in that year in which the month was the coldest. In only one case does it occur in that year in which the month was the warmest. In two months the least mortality was in the warmest year. In one month it was in the coldest year.

The Mortality under 2.—In 2 out of the 12 months the greatest mortality occurs in the coldest year. In 3, in the warmest year.

In 4 months the least mortality was in that year in which the month was the warmest. In no month was the least mortality in that year in which the month was the coldest.

Striking Months.—If we examine September in the table of the whole mortality for the 5 years, we find that in 1835 the number of deaths was the greatest, and that in 1835 the average temperature was the lowest. That in 1834 the number of deaths was the smallest, and that in 1834 the average temperature was the highest. The

mortality of April and May was much greater in 1832 than in any other year. In both these months the average temperature of this year was lower than in any other. In August of 1832 the mortality was remarkably small, particularly among those under 2 years. In this year the average temperature of August was 3 degrees higher than in any other year, and 5 degrees higher than in that year in which it was the lowest. The average temperature of December in 1835 was 9 degrees lower than in that year in which it was the highest. The number of deaths in the table of the whole mortality was greater than in any other year. This was the year of the measles.

This would give the least mortality more frequently to the warmest than to the coldest years, but most frequently to those years which range between the coldest and the warmest.

The two next tables exhibit the mortality of those under 2 years from thoracic and abdominal diseases. In these tables the deaths from none of the eruptive fevers are included.

	The number of those under 2 years who died of Thoracic Diseases.						The average Temperature.						
	1832.	1833.	1834.	1835.	1836.	Tot'l	1832.	1833.	1834.	1835.	1836.	Total.	R'nge.
Jan.	14	10	16	16	24	80	26.6	30.6	23.6	25.7	25.7	26.5	7
Feb.	14	4	15	17	10	60	26.3	24.6	32.5	24.01	30.3	27.6	8
March.	18	4	11	15	14	62	35.3	31.3	36.1	29.3	30.3	32.4	6
April.	8	4	8	12	3	35	39.6	46.4	45.2	40.6	43.09	43.01	7
May.	7	1	10	4	4	26	51.2	57.3	51.5	53.7	52.9	53.3	6
June.	7	3	4	6	7	27	63.03	61.6	63.3	63.8	58.4	62.5	5
July.	3	4	5	5	8	25	66.5	70.1	73.8	71.3	68.6	70.4	7
Aug.	0	9	7	17	6	39	70.3	66.7	67.3	67.4	65.1	67.4	5
Sept.	7	11	10	33	4	65	60.6	60.8	62.03	57.7	60.1	60.3	5
Oct.	20	9	9	43	5	86	51.3	50.1	48	52.4	44.2	49.2	8
Nov.	22	11	6	49	11	99	40.4	37.4	38.2	39.6	35.6	38.3	5
Dec.	37	9	5	28	7	86	30.3	31.1	27.1	21.8	28.2	27.6	10
Total.	157	79	106	245	103	690	46.8	47.2	47.3	43.1	45.2		

Thoracic Diseases.—From thoracic diseases we find the greatest mortality to occur in November. From this time there is a decrease in each month excepting March, to May. Between April, May and June, there is very little difference in the mortality. In August the mortality begins to increase and continues to do so till November. The greatest mortality occurred in 1835, the coldest year. The least mortality in 1833, the warmest year. In 3 months out of the 12 the greatest mortality occurred in the coldest year, in only 1 in the warmest. In 3 months out of the 12, the least mortality occurred in the warmest year, in 2 in the coldest. In August of 1832, there

was not one death from thoracic disease. This year the average of the thermometer was 3 degrees higher than in any other of the 5 years. In May, 1833, there was only 1 death from thoracic disease. This year the average of the thermometer was nearly 4 degrees higher than in any other year.

	The average Temperature.							The Deaths, under 2, from Abdominal Diseases.					
	1832.	1833.	1834.	1835.	1836.	Total.	Range.	1832.	1833.	1834.	1835.	1836.	Total.
Jan.	26.6	30.6	23.6	25.7	25.7	26.5	7	3	2	4	3	2	14
Feb.	26.3	24.6	32.5	24.01	30.3	27.6	8	2	5	2	1	4	14
Mar.	35.3	31.3	36.1	29.3	30.3	32.4	6	1	4	4	3	0	12
April.	39.6	46.4	45.2	40.6	43.09	43.01	7	0	2	2	4	1	9
May.	51.2	57.3	51.5	53.7	52.9	53.3	6	7	1	1	0	3	12
June.	63.03	61.6	63.3	63.8	58.4	62.5	5	2	1	3	2	2	10
July.	66.5	70.1	73.8	71.3	68.6	70.4	7	3	11	7	7	3	31
Aug.	70.3	66.7	67.3	67.4	65.1	67.4	5	3	20	22	28	29	102
Sept.	60.6	60.8	62.03	57.7	60.1	60.3	5	18	25	22	22	60	147
Oct.	51.3	50.1	48.	52.4	44.2	49.2	8	7	9	12	7	31	66
Nov.	40.4	37.4	38.1	39.6	35.6	38.3	5	4	2	7	3	6	22
Dec.	30.3	31.1	27.1	21.8	28.2	27.6	10	1	7	3	2	4	17
Total.	46.8	47.2	47.3	43.1	45.2			51	89	89	82	145	

Abdominal Diseases.—From abdominal diseases the greatest mortality occurs in September. From this time there is a decrease pretty uniform to April. From April the mortality increases to September. The greatest mortality was in 1836, the least in 1832. There was but 1 degree difference between the average temperature of these 2 years. Neither of them was so cold nor so warm as the coldest or warmest years. In 4 out of the 12 months the greatest mortality occurred in that year which was the coldest, and in 2 in the warmest. In 3 out of the 12 months the least mortality occurred in the warmest, in 3 in the coldest.

The general impression to which these observations lead one is, that the warmer months and years are more favorable to health than the colder. This has been the result of every view that has been taken of the tables, with the exception of that in which the winter months of the different years were compared. Here, so far as there was any correspondence, the coldest seasons were more favorable to health. The correspondence is in but few instances very strong. But great allowance is to be made for the various circumstances which must enter into and modify such results, in addition to the errors necessarily connected with the collecting of facts from such sources, and arranging them in such a form as to render them available.

Observations upon a larger scale and extended through a greater number of years, might afford something more definite. But it is not to be expected that the exact effect of a single cause, where such a multiplicity of causes must be in operation, would stand out very obvious, however extensive the field of observation might be. This general correspondence, however, small though it be, between the warm months and years, and a diminished mortality, is sufficiently uniform to be worthy of attention.

ART. IV.—*Dropsy of the Fœtus. Congenital Hydrocephalus, Ascytes, and Anasarca.* Read before the Boston Society for Medical Improvement, by W. CHANNING, M.D.

THE diagnosis of these diseases of the fœtus is not easy. A good deal of attention has recently been directed to these and other diseases of intra-uterine life. Thus it has been discovered that pneumonia may occur in the fœtus. Pleurisy has also been noticed, and its ordinary products found; and the same of peritonitis. An old writer, I think Puzos, has described the symptoms of fœtal convulsions, and he tells us that blood-letting removes the disease as by a charm. The cases in which pleurisy, pneumonia and peritonitis have been discovered, show how important it is to examine the bodies of dead-born children, and of those which survive but a few hours, or days. A very reasonable desire is always expressed by parents and friends to know what has caused the death in such cases. And this becomes still more urgent, when, as it sometimes happens, many children in succession are still-born, or survive but a very short time. Concerning diseases of the lungs in the fœtus, one would think much interest would be taken, especially that we may learn if any, and what modifications such diseases get from the condition of these organs before respiration occurs. It happens to us often to observe in the instances in which respiration is established, but in which life soon ceases, such a condition of the surface of the body as might be referred to an imperfect performance of some function of the thoracic viscera. It is often ascribed to some long continued or severe pressure of the brain during labor, or to some organic affection of the heart. But it is very rarely the case that any dissection is made, by

which the actual condition of the organ may be ascertained. To be sure, in medico-legal inquiries, where there has been suspicion of infanticide, dissections have been made, and sometimes such obvious congenital diseases discovered as have served to explain the death. But I believe it is rare with us to do this merely for its pathological interest, and this gives much value to the inquiries and results which have, as was said above, so lately come to us from Europe.

I remember one case of great interest in this connection, in my own practice, in which *purpura hemorrhagica* existed at birth. The appearance of the skin was most curious. It was literally covered in every part of it with purple or nearly black spots, perfectly circular, and above four lines in diameter, and apparently of the same shape, and occupying the same distances from each other. Where they were not, the skin was perfectly white, the free spaces being small. The arrangement of these spots was so symmetrical as to seem to have been artificially made. Hemorrhage soon occurred about the cord. It was impossible to check it, and in two or three days the child died. I now regret that an examination was not made.

In another case in which jaundice occurred soon after birth, and which was fatal, dissection discovered disease of the liver. Now it is quite easy to get permission to make these examinations. They are often desired, and if physicians amongst us will give themselves the trouble to make them, curious and it may be practical pathological knowledge may be gained from them.

Dropsy in the fœtus gets its interest principally from its connection with labor. Before this happens the woman may suffer much from the great size of the fœtus, and from the great amount of liquor amnii. It is rarely, if ever, however, that any notable trouble arises till labor sets in. I shall give some brief notices of cases which have come under my own observation.

Case I.—This was a case of *hydrocephalus*. The case was under the care of my late and lamented friend, Dr. Gorham. The labor had far exceeded the usual time of the process, and circumstances having arisen to make Dr. G. uneasy about the patient, I was desired to see her with him. I found the head very low, just within the external organs, filling every where the pelvis, and to the feel quite as firm as usual. It was agreed that the forceps should be applied. I placed them over the sides of the head, their convex surfaces being to the sides of the pelvis. The blades locked readily, and the ends of the handles were at the usual distance from each other, as when the head of the standard

fœtus is between them. I made compression in order to secure a good command of the head, and was about to extract. I was surprised to find that the handles came together under very moderate pressure, and that the instrument at once slipped off in the attempt to extract. This same thing happening a second time, a more careful examination was made. Before stating the result, let me say that the instruments were applied with great ease—not the smallest difficulty occurred in locking them, and that they slipped off in the gentlest manner possible. In short, finding them to be thus coming away upon the use of slight effort, no force was necessary for their complete coming off. Examination discovered that there was water in the brain or head. The sutures were wide apart, or the bones which form them, and there was a distinct projection between them during pains. Water being in the head, explained its long delay in the pelvis under very fair pains. And more, it explained what happened to the forceps. The head was so elongated by its contents, in the only direction in which it could lengthen by a pressure or force acting above, it was only partly in the pelvis. The base of the cranium was far above the brim of this cavity, and of course the mastoid processes—the angles of the lower jaw—the projection of the occiput, were beyond the reach of the instrument. It had, in short, no firm point of support on which to rest during extraction. The instrument then just came together, by the yielding of the head, and was simply squeezed off, so to say, by the effort to extract, or bring away the head.

The length of the labor, its exhausting effects upon the patient, the impossibility of delivery by the means employed, and the probability of the death of the fœtus, determined us to use the perforator. This was done, and a flood of water followed perforation. Labor was now easily accomplished, and the woman soon after manifested the usual relief. She continued to do well. I saw her, I think it was about the third day after, and found her sitting up, out of bed, and combing her hair. This occupation shows how little, if any, was her exhaustion. Soon after my visit, she very suddenly felt as if something had broken within the pelvis, and immediately a most fœtid discharge, and in large quantity, containing liquid fœcal matter, came away. This was followed by alarming sinking. She never rallied, and died the next day. So rapid was decomposition, the weather being very hot, that an examination of the body was not made. This case teaches the danger of long continued pressure in

some instances, of the head of the fœtus; especially when of such enormous size as it was in this example. It teaches, too, how grave may be the local effects of such pressure, without any apparent general disturbance. In this case all the functions seem to have been well performed, and the strength was unusually great. It finally teaches how wide and fatal, too, may be the influences of any sudden and great change in the condition of parts, the actual morbid state of which has not been declared by any observed symptoms.

Case II.—Mrs. S. Her general health had long been enfeebled by much functional disease of the womb. Irritable uterus existed, with its usual sympathies. One of the most troublesome of these was great pain and tenderness in the course of the whole spine. She was a woman of much firmness, and complained scarcely never, though always suffering. But when I examined the spine by pressure, such was the increase of pain that tears poured from her eyes in her efforts to resist the expression of suffering. The womb was slightly prolapsed. She had often aborted, and came under my care a second time in about the middle period of pregnancy. By second time, I mean I had been consulted by Mrs. S. a year or more before, on account of uterine and spinal complaints.

Pregnancy advanced with occasional troubles, and labor took place at the usual time. This was tedious and very painful. At length the head came within reach of examination, and was found to be distended with fluid. The sutures were wanting every where, the bones being found widely separated, to the extent, as was ascertained after delivery, between the parietal bones, of about three inches. The head was perforated. A great discharge of water took place, and the delivery then proceeded rapidly. Very soon after labor Mrs. S. was seized suddenly with extreme distress through the whole abdomen—fulness occurred here, and exquisite tenderness on pressure. There had been no chill, and the violence and suddenness of the attack did not resemble peritonitis. The usual discharges from the uterus continued. After-pains were severe. The bladder was free.

The treatment adopted at once had for its object the palliation or removal of suffering. Opium was the principal internal remedy. Fomentations were applied to the abdomen, and these not succeeding soon to give relief, an embrocation of spirits of turpentine was substituted. This produced great irritation of the skin, with intense redness, but was soon followed by marked relief. Mrs. S. slowly

but entirely recovered, and has since had two healthy children, each at the full time.

Case III.—I was desired to visit Mrs. —— in a neighboring town. The messenger said that she was in labor, but something had given way, and her situation was very alarming. I got to the address in about an hour, and learned from the physician in attendance that the labor had been long and painful—that during an unusually severe pain, Mrs. W. had suddenly complained of acute, agonizing pain low down in the left iliac region, or near it, and for which she earnestly demanded immediate assistance, and that before any thing efficient could be done, she exclaimed that something had given way, and that after it all suffering had ceased. I learned further that some hemorrhage had occurred. The presenting part, the head, had receded soon after the sense of tearing just named, and no part of the child remained within reach of the finger. There was general distress—vomiting, coldness, rapid and feeble pulse. The countenance was much sunken. In short, the symptoms of ruptured womb were all present.

It was determined, on consultation, to attempt to deliver the child by the feet, if practicable, and if it could be done without a dangerous exertion of power. The feet were reached without difficulty, I mean with much less than is encountered in common cases of turning. The feet descended gradually, and comparatively easily, and at length the whole of the infant, save the head, was delivered. Here progress was arrested. Such effort was made as is commonly employed, but in vain. The head would advance as if about to come forth. Then it would stop, and suddenly return to its former situation when effort was relaxed. I now determined to perforate the head, and passed the instrument at a point near the occiput. A great discharge of water immediately took place, the bones collapsed, and the head was soon born. Great relief soon followed. The vomiting ceased. The pulse rallied. The skin grew warmer. I heard from this patient, but did not see her again. The symptoms became more and more favorable until the fourth day. Sinking now took place, and she died on the fifth. Examination was not permitted.

In this case rupture of the womb took place probably without the concurrence of previous uterine disease. In some recently printed cases, a connection of rupture, if not dependence of it, on some morbid or unusual state of the womb, has been discovered on dissec-

tion. So often has this been observed, that one writer, at least, ascribes this species of rupture to some such condition as renders the womb unfit for the usual occurrences of labor. I have seen many cases of rupture, and in one of them only was there such obvious disease of the womb as at once to explain the accident. The woman was a washerwoman. She had complained much of pain and tenderness at the lower and right part of the abdomen. The pressure on this part which her occupation demanded was especially annoying. The labor was long. I was desired to see her towards the close of it. The head was very low, and it was determined to apply the forceps. There was a short delay of the operation, and suddenly the pains ceased; there was a small but continuous discharge of blood from the vagina, and great exhaustion or sinking manifested. *The head did not recede.* It would have been perfectly easy to deliver with forceps or crotchet, but the woman peremptorily forbid all attempts to save life, and most emphatically refused all succor. She sunk more and more rapidly, and died of a Saturday. I examined the body early Sunday morning. No sooner was the abdomen cut into, than the intestines appeared at the wound, after the same manner as I have witnessed during life. The child was found lying out of the womb, and such was the force required to drag the head from the pelvis, that it was not difficult to account for its not receding after rupture. There was on the left side of the womb a space five or six inches in width, and more in length, in which the proper uterine substance was wanting. It was strictly membranous. It contrasted strongly with the thickened, contracted, proper substance of the womb which wholly surrounded it. It did not less so in regard to color. It was black, while elsewhere the womb was perfectly white. Through this black, membranous, degeneration, if such I may call it, rupture had occurred, and through it the child had escaped, all except its head, into the cavity of the abdomen.

I have referred to this case wholly in consequence of the remark which was stated above, of the frequency with which rupture has been complicated with disease of structure, by a foreign writer, and to add that in no other examination which I have seen, or made, of ruptured womb, have I met with any such morbid lesion of structure as has attracted my regard. It may not have been looked for in all the cases, or with sufficient care in any. For one other cause have I introduced this case. It was said that in the one in which hydrocephalus was complicated with rupture, it was probable that the accident

occurred in consequence of the pressure of the enlarged head. When this pressure acted, and whether as both predisposing and exciting cause, and so, during pregnancy, or only as the latter, and if last, only during labor, could only have been answered by dissection. In any future instance it will be very interesting to trace, as far as it can be done, what actually the connection is.

Case IV.—This was a case of feet presentation. The labor had advanced as usual, and at length the extremities and trunk were born. The pains had not been very strong, and ergot had been given. At length the uterine efforts quite ceased, the head still being in the pelvis. I now saw Mrs. T. The womb was quiet, the child so far forth as stated, the head not advancing with such mechanical effort as was thought proper, and as is usually employed. I was surprised at the resistance of the head to any thing like progress. The fingers were readily passed into the mouth and the chin depressed, and extracting force used, but in vain. The crotchet was now passed into the mouth, and with this delivery was soon accomplished.

The cause of difficulty was obvious enough. The cranium, filled with water, was monstrously enlarged. Ascytes also existed.

In this case attention had not been directed to the abdomen, which apparently contained much water, and hydrocephalus could not have been *diagnosed*, as the cause of the delay of the head in the pelvis. And if it had been discovered, viz. the ascytes, would the inference probably have been that the difficulty was owing to dropsy in the head? We very well know how often great difficulty is experienced in getting away the head in *preternatural labor*. This is often so when uterine efforts are strong, and the patient both willing and able to aid them. In the above case, the pains had ceased. The woman was much exhausted, and could exert but little voluntary power. These facts very well explained the difficulty of completing the labor without resorting to the hypothesis of hydrocephalic complication. I am quite ready to confess, however, that if the ascytes had been observed, there would have been strong ground for a suspicion that the difficulty might have had its cause, or one of its causes, in such complication. This admission suggests a rule of practice, which may easily be followed, viz. in similar cases always with great care to examine the abdomen, and the extremities too, so that if dropsy be present in them we may have it in mind that the brain may be the seat of the same disease. As in these cases the child is generally dead, the only question which arises is, how shall the patient be

spared most suffering? Perforation may be made, as it very easily was in the second case, below and behind the ear, through the roof of the mouth, or in short in just such place as is nearest, and which will be at the same time best fitted for the purpose.

Case V.—I know nothing of the labor in this case. During a winter term, a preparation was sent to me from the country, and described to be of very curious interest, as a monstrosity which had been produced by the imagination of the mother. The story was this. A sea-captain had returned from the West Indies, and brought with him a very large *turtle*. He had the animal carried to the house, and deposited him in the yard for safe keeping. His wife being then in the middle period of pregnancy, had not heard of the arrival of this guest, and encountered him as he was lying and sunning himself on the door-step. As she approached, he projected his limbs from the shell and moved off. She was exceedingly frightened. She went, however, her full time, and was delivered of a most misshapen mass, which was believed by every body to be the *turtle*. The weather was very cold, and for *safe keeping*, the monster being dead, was put into a room where it was soon frozen solid, and in this way preserved its shape perfectly. In this state it was sent to me. It soon began to thaw, and after remaining one night in my warm room in the college, I found in the morning that it was a dropsical fœtus, entirely put out of shape, and I may add out of *countenance*, by the water which filled every part of it. The skin soon gave way, the water escaped entirely, and nothing remained but a loose bag of bones. I have stated this case as showing how extensively dropsy may exist in the fœtus. Hydrocephalus, existing alone, has been referred to—then as complicated with ascytes—while this last case shows the universal occupation of the fœtal body by water.

Art. V.—*Stricture of the Œsophagus.* A paper read before the Boston Society for Medical Improvement, by Henry G. Clark, M.D.

Perhaps there is no disease accompanied with more distressing sensations to the patient, or whose treatment is more unsatisfactory to the attendant, than stricture of the œsophagus—especially where it depends upon structural disease. Indeed, Boyer and some others

assert that it is *always incurable.* I have no doubt that *many curable cases remain unrelieved,* either from the intractability of the patients themselves, or from the difficulty experienced in adapting instruments to their particular wants.

Three varieties are recognized, namely: 1st, the *spasmodic;* 2d, the *inflammatory;* and 3d, the *scirrhous* or *malignant.* Two of these, the *spasmodic* and the *malignant,* may as well be passed over; the first *requiring* little or no treatment, and the latter being *benefited* by none. The *second* variety is, therefore, of the greatest practical importance. It results from *common* inflammation, either acute or subacute, and consequently is the kind most frequently encountered. It may be distinguished from *spasmodic* stricture by its *permanency.* It is not so easily known from scirrhus; but the absence of the peculiar signs of that disease, *especially in the general condition of the individual,* will commonly make the diagnosis sufficiently distinct. Inflammatory stricture may also frequently be traced to some probable exciting cause, suddenly supervening upon *previous good health;* such as the swallowing of highly irritating fluids, the lodgement of partially masticated food, foreign bodies, &c. &c.; while malignant disease is frequently *preceded* by *a vitiated constitution* and *bad* health. All the tissues of the œsophagus may be involved in this stricture, or it may be strictly limited to the mucous membrane.

The principal modes of treatment, recommended and practised by surgeons, have been two—*cauterization* and *dilatation.* The caustic treatment was adopted by Mondière, who professed to have cured 4 out of 7 cases; also by Sir Everard Home, Charles Bell and Dr. M'Ilvaine, with very fair success—but they used the comparatively mild nitrate of silver, and in no instance attempted to *burn* a passage through.

The baron Boyer and Ruysch condemn the caustics entirely in this disease.

The method by dilatation is certainly best adapted to *many* cases, and, if the nitrate of silver be carefully used in connection with it, to perhaps *all.* Sir E. Home, although somewhat of an advocate for caustics, admits that dilating instruments may be applied usefully to numerous cases where severer means would be unjustifiable. He used the gum elastic catheter, or bougie; and Mr. Samuel Cooper thought it the best instrument that could possibly be used. But its inconvenient size, when the stricture has become partially dilated in

the progress towards a cure, renders it often quite objectionable, and sometimes useless. The difficulty in ***passing*** these large sized bougies is however very much owing to the want of the ***small flexible guide*** which the extremities of the smaller size furnish.

Professor Jameson, of Baltimore, has reported several successful cases, on which he tried, without any benefit, many different instruments, and which he finally cured by one of his own invention. This is made with a shaft of whalebone, having an ivory bulb at the end, of a size properly adapted to the state of the stricture. It is accompanied by ***a guide, or director,*** which consists of an ivory ball about two lines in diameter, fastened upon an elastic steel wire. This, when used, is slipped through the bulb of the instrument, in a direction parallel to its shaft, and passed along with it, but of course a little in advance.

With these prefatory remarks I will submit the following case.

In December, 1838, I visited Miss B., and found her suffering extremely from the want of food and the impossibility of swallowing it. She was 40 years of age, tall, pale, with bloodless lips and considerably emaciated. She had just risen from her bed, to which she was obliged to resort after the effort of dining; a long and fatiguing operation. She had a tolerable appetite generally, and at times says she is almost distracted with hunger. She has memorrhagia, obstinate constipation, and various other troubles, which seem to have been induced by her inability to exercise in the open air.

Six years since, after eating some pieces of meat rather hastily, she was seized with soreness of the throat, and considerable dysphagia following it. This lasted for a few days only with any severity, but did not then entirely disappear, and in the course of five or six months returned, so as to render the deglutition of ***solid food*** quite difficult. She had at this stage of the trouble occasional turns of choking and partial vomiting. There was no great alteration in these symptoms for three years and a half, except that her general health had suffered somewhat. Since the summer of 1836, she has taken no meat at all, and has been obliged gradually to diminish the quantity of the vegetables, puddings, &c. upon which she subsisted; till at present she takes only liquids.

This patient has been the subject of much medical treatment, and has lost all her teeth, in consequence, as she thinks, of a long continued perseverance in mercurials. No examination has ever been made of the œsophagus.

Finding no external disease about the neck, I proceeded to pass a common small probang into the œsophagus through the mouth, but it was suddenly arrested at about five inches below the top of the pharynx, or eight inches measuring from the anterior edge of the upper jaw. I next tried wax bougies of two or three lines in diameter, and failed. The smallest sized elastic catheter, *one* line in diameter, was armed with its wire and passed through the strictured portion several times. The larger sizes were again tried, without success. However, ***the difficulty was ascertained;*** and I left the patient, directing only a daily enema of warm water.

January 11th, 1839.—Patient reports herself the same. Some soreness occurred in the œsophagus after the use of the instruments, which lasted for a day or two. Bowels relieved by enemata. This day a solid elastic bougie, ***with a tapering extremity***, of double the size of the catheter, was with some difficulty passed through the stricture. The contracted portion seems about three fourths of an inch in extent. I now also found that the œsophagus just above the stricture was a good deal dilated, and formed a sort of pouch round it, which gave great trouble by lodging the food attempted to be swallowed. And this, it may be remarked, is no doubt the great obstacle to the passage of an instrument, in many cases, of any useful size, without the aid of a director, which is so constructed as ***easily*** to slide into the small outlet. It would be an accident of the most serious nature to force a new passage by driving the point of the dilator through the walls of the canal.

The patient living out of town, she was seen only at intervals of five or six days; but at the end of ten weeks the stricture had yielded so much that she had been able to increase the quantity and consistence of her diet. A bougie of the size of a large catheter, and the largest of the elastic French instruments that could be found, now passed readily, and it was therefore necessary to replace it by a new instrument of different construction. I procured some of the dilators recommended by Professor Jameson, and described in another part of this paper, but it was impossible to use them on account of the too forcible spring of the whalebone shaft, and the want of a flexible guide. They produce great irritation by pricking the throat in vari-

ous directions, and in being often caught in the pouch formed above the stricture. Various other instruments were tried, with no better success. I then recurred to the elastic bougies, and having selected a hollow one of suitable size, slid upon its shaft an oval bulb of ivory, leaving about an inch of the smaller extremity free, for the purpose of a director. This bulb was secured to the shaft by gum mastic, and a rivet passed through its centre. It was armed with an untempered iron wire, which passed down to the centre of the ivory bulb, being there arrested by the rivet. This answered the purpose perfectly, and the patient continued to improve; the ivory bulb being regularly increased in size. (See drawing.)

December, 1839, one year after first visit. Patient has regained her health, strength, and considerable color. She can swallow almost any light food, and in sufficient quantity to satisfy her appetite.

At the present time (Oct. 1842) the œsophagus is dilated to nearly its natural size, and the patient continues well.

Art. VI.—*Fiske Fund Prize Dissertation of the Rhode Island Medical Society.** By Usher Parsons, M.D., Providence.

"What are the Causes, Character and Nature of the Diseases of the Spine, both Structural and Functional; and what is the best mode of Treatment to be employed in each?"

The number and variety of spinal diseases, and their increasing frequency, demand of the medical profession an investigation of their nature and causes, and the best means of prevention and cure.

Consisting as they do of structural as well as functional diseases, it is necessary to commence our subject with a brief view of the anatomy and physiology of the spine. In doing this, we behold what is everywhere presented in animal mechanism, a wonderful display of creative skill, in the form and adaptation of every part to the office it was designed to fulfil. In the first place, we observe the frame-work, combining the essential properties of *strength*, for firmness of muscular attachment and action, with the least possible volume and weight of substance,—of *flexibility*, for every necessary variety of motion and attitude, with effectual guards against dislocation,—of *security*, for the lodgement and protection of the delicate cords or channels of sensation and motion, amid all the concussions to which the body is liable, yet providing at every joint a safe passage to the nerves leading from the cerebro-spinal axis to the sentient extremities. In the next place, we observe an arrangement of tendinous cords and muscles attached to its processes, fitted to sustain the frame-work in an erect posture, yet so numerous and varied in their order and arrangement as to admit of every desirable kind and extent of motion; and finally we perceive it giving points of support to the

* At an adjourned annual meeting of the Rhode Island Medical Society held at Providence on the 8th day of September, 1842, the Trustees of the Fiske Fund announced that they had awarded to the author of the Dissertation bearing the motto, "*Vestræ petitioni respondeo diligenter*," the premium of one hundred dollars by them offered for the best dissertation on the question,

"What are the Causes, Character and Nature of the Diseases of the Spine, both structural and functional; and what is the best mode of Treatment to be employed in each?"

Upon breaking the seal of the accompanying packet, they ascertained its author to be, Usher Parsons, M.D., of Providence.

In awarding the premium to this Dissertation, neither the Trustees nor the Rhode Island Medical Society hold themselves responsible for the doctrines herein inculcated, treatment recommended, or opinions advanced.

Richmond Brownell, } *Trustees.*
Theophilus C. Dunn, }

Attest,
Thomas H. Webb, *Secretary.*

ribs which protect the organs of circulation and respiration, and a firm attachment and support to the great channels of circulation and to many of the viscera of the abdomen. Amid such a multiplicity and variety of properties and functions, many of them essential to life, can it be thought strange that disorders and diseases are numerous?

The spinal column is composed of 24 separate bones called vertebræ; and as each vertebra increases somewhat in size from above downward, they collectively exhibit a pyramidal figure, with its base resting on a large bone, the sacrum; and as this bone narrows toward a point, and is terminated by a smaller one, the os coccygis, they are called the lesser or inverted pyramid. Of the 24 vertebræ, 7 belong to the neck, 12 to the back, and 5 to the loins. Viewed laterally, the column presents three curves; the cervical portion is slightly concave posteriorly, the dorsal largely concave anteriorly, to allow room for the thoracic viscera, and the lumbar concave posteriorly, to give support to the liver and other large organs of the abdomen. A line drawn perpendicularly from the apex of the pyramid, or the atlas, to the centre of its base, would, if viewed laterally, exhibit a preponderating portion in front of it; and the weight of the head superimposed, and of the thoracic and abdominal viscera in front, increases the natural tendency of the column to bend forwards, which tendency is, however, resisted by the muscles extending along the spine from the sacrum to the head.

Each vertebra consists of body and processes. The bodies are interiorly of a light cancellated structure, increasingly so from above downwards; but their surfaces are hard and compact, as is nearly the whole substance of the processes.

Between the surfaces of the vertebræ is interposed an elastic fibro-cartilaginous substance, somewhat resembling gum-elastic, which acts like a cushion, yielding to pressure in all directions. The bodies of the vertebræ are held together by strong longitudinal fibrous bands in front, by connecting ligaments between the processes, and by deep-seated muscles.

The whole column is maintained in an erect posture by large superficial muscles, which ascend from the pelvis to be inserted like the stays of a ship from her hull to her masts. They are the latissimus dorsi, the longissimus dorsi, and the sacro-lumbalis. These powerful muscles fill the space between the sacrum and the ribs; and the two latter are so intimately blended and incorporated together as to

have the appearance of one large muscle, covered by and adhering to a strong, thick aponeurosis, of a white and glistening appearance, having in itself scarcely any trace of elasticity.

But there are other muscles connected with the spine, and influencing its rectitude, which neither arise from the pelvis, nor are comparable in their office with the stays of a ship. They arise from the occipital bone, and from the cervical and upper dorsal vertebræ, and are inserted into the shoulder and ribs; and may be compared to the lifts of a ship's yard, or the chains of a suspension bridge. In either case, the mast, or the prop to the chain, sustains the appended weight in equipoise. But when a defect or weakness occurs in one side of the mast or prop, or spine, or when undue weight is appended to one of the suspending cords, or when the cords are of unequal strength, or one of them stretches in its length, then the mast, prop or spine must bend and exhibit the appearance of a lateral curvature. The muscles thus situated in reference to the spine, are the trapezius, rhomboidei and levator scapulæ.

From this brief survey of the structure and functions of the spinal column and its appendages, let us turn to their pathological states.

And, *firstly*. When the spinal column has been held, for a short time only, in a laterally inclined posture, the inter-vertebral substance which had yielded to this state, will, on the resumption of an erect posture, recover its former equal thickness. But if the posture be long continued, the ligaments and muscles accommodate themselves to this state, and becoming permanently fixed, oppose the natural resiliency of the inter-vertebral substance which tends to restore an erect posture; and the lateral inclination thus formed, will in process of time affect in a corresponding manner the relative thickness of the two sides of the vertebræ, and thus produce a still more permanent distortion. The consequence of all this is, a change in the centre of gravity, for a line now drawn from the vertex of the head to a line between the feet will exhibit unequal volume of the trunk on its two sides. To correct this, there is a constant effort of the muscles to restore the equilibrium by bending the spine, in some other part of its length, in an opposite direction. Hence after a time another curve is formed, which may be termed secondary, or compensatory, having the same pathological character as the first. And this secondary curvature may and often does exceed the limit necessary to balance the first, and require to be compensated in its turn by a third curvature, thus giving to the column a serpentine aspect.

Secondly, when a small number of the bodies of contiguous vertebræ are softened or destroyed, by ulceration or necrosis, originating in constitutional or local cause, the spine can no longer be sustained by the ligaments and muscular stays, but bends forward at the diseased part under the weight of the head and other superincumbent portions, and produces an angular projection backwards, commonly called ***hump*** or ***hunch-back***. Sometimes, in consequence of the diseased vertebræ being more wasted on one side than the other, the projection may present a twisted appearance. This disease often originates in tubercles formed in the cancellated structure of the vertebræ and the intervertebral substance.

Thirdly, when several of the bodies of the vertebræ are softened, or when, from weakness of the muscles that stay the back, the anterior or antagonizing muscles in front of the abdomen act with undue power, a more extensive and gentle bend of the spine is produced, called ***posterior*** curvature.

Fourthly, in posterior projection, as in lateral curvature, the centre of gravity is changed, which nature strives to correct by bending another portion of the spine forwards, producing ***anterior*** curvature. I am not aware that any author has spoken of anterior curvature as compensatory to a posterior projection, but I have seen cases that suggested the idea, and Dr. Abbie, the orthopedist of Roxbury, informs me that he has seen proof of the fact. Anterior curvature arises also from the same constitutional causes as posterior projection, as from rickets or from ***mollities ossium*** affecting the processes instead of the bodies of the vertebræ. It is also caused in the loins by the early shortening of one limb. This form of curvature may embarrass the viscera by projecting into the great cavities more than other kinds of distortion; but fortunately it is of rare occurrence.

Fifthly, the vertebral column may be shortened, without any material deviation. This may be produced by rickets and by ***mollities ossium***. The two diseases are by some writers confounded with each other. But rickets, it should be remembered, is a disease of childhood alone, and is preceded by other marks of the disease, as curvature of the legs; while mollities ossium occurs in mature age, and is referable to some pre-existing constitutional disease, as syphilis, cancer, &c. This abnormal state may be called ***shortening of the spine***. As it causes an eversion of the lower ribs, it gives rise to an appearance common also to angular projection, which is called chicken-breasted.

Sixthly, abscesses may form between the lumbar vertebræ and

psoas muscle, and point in various depending places. They may erode and destroy the bodies of the vertebræ by ulceration, and sometimes the disease, owing to a jar or shock of the loins, may begin in the vertebræ themselves.

Seventhly, injuries of the spine, as fracture of the bodies or processes of vertebræ, with or without dislocation.

Eighthly, a defect may exist in the bony cylinder enclosing the spinal marrow, caused perhaps by an undue quantity of serum surrounding the spinal cord, and pressing its membranes outward at some point in the form of a sac. This constitutes *spina bifida.*

Ninthly, there may, from some morbid cause, general or local, be an undue deposition of osseous matter on the surface, forming a large tumor called *exostosis.*

Tenthly, the spinal cord or its membranes may be diseased structurally or functionally.

LATERAL CURVATURE OF THE SPINE.

The foregoing pathological remarks prepare the way for an investigation of the nature and the best mode of treatment of the several diseases we have mentioned, as appertaining to the spinal column and its appendages. Considering them in the above order of arrangement, we shall proceed to describe the one which is of most frequent occurrence, lateral curvature of the spine.

The following table, made out by Mr. Ward, an eminent English surgeon, will show the comparative frequency of the various spinal diseases as presented to him during a long career of professional experience. Of 282 cases, there were,

Of curvature to the right side without disease,	230
Of " " left side " "	10
Of posterior curvature without disease,	9
Of " " with "	30
Of anterior curvature,	3
	282

These occurred in private practice, and, so far as I am able to judge from experience and inquiry, they present a fair sample of the average proportion in other large cities among the higher classes of society; but in other communities, the proportions, as we shall have occasion to remark, would be somewhat varied.

The causes of lateral curvature may be considered under the heads of proximate and remote. The bones themselves, it has been well

ascertained, and the foregoing table confirms the fact, are not primarily diseased. Formerly, ulceration of them and the formation of matter were apprehended as among the sequelæ, to prevent which, as well as to promote the absorption of matter, many surgeons were in the habit of torturing their patients with issues, setons, moxas and hot irons. Their efficacy in posterior angular distortion, *maladie du Pott*, which, as dissections have proved, is essentially different in its nature, partly gave rise to this most pernicious error as to the proximate cause. Another origin of the mistake has been the reports of cases of lateral curvature which represent the bones after death as softened and full of scrofulous matter. This opinion, Mr. Shaw thinks, will on close investigation be found incorrect; "for in the greater number of instances the internal structure of the bodies of the vertebræ has a natural appearance. It is easy to account for the mistake. If the vertebræ of a patient who has long been confined to bed, be examined, the appearance described above will be found; but if the person has been in the habit of taking exercise a short time previous to death, the bodies of the vertebræ are discovered to be as firm and compact as those in a perfect spine. It is well known that the shape of the vertebræ is materially altered in cases where the spine is much distorted, but as no mark of disease is discovered when a section of the bones so misshapen is made, we may infer that the change of form is independent of any specific disease, and also from the fact that it is found to correspond to the direction in which the pressure of the distortion has been made." In fact, it is almost certain that the vertebræ, in cases of lateral curvature, are even less liable than more solid bones to be inflamed by the irritation caused by pressure; and the opinion formerly prevailing, that actual disease of the bone does exist in such curvatures, is without foundation;—an effect has been mistaken for a cause.

Of the cartilages it may be said that their soft and yielding nature tends to produce lateral curvature; and as this softness decreases by age, the tendency to the disease diminishes, rarely appearing after middle age. Mr. Pott says he has never known it occur after the age of forty. To the greater firmness of the cartilages in laboring people, M. Wasse attributes their exemption, as compared with the sedentary; they sink less in height during the day. A yielding state of this substance seems therefore a necessary condition; but this is by no means a proximate cause. In respect to the ligaments of the vertebræ, a relaxed state of them may accompany curvature, but as

they are passive in their nature, this relaxation must result from the influence of some other cause.

The next texture to be considered, and one which plays an all-important part, is the muscular. It is here that the trouble begins, and here it continues. Commencing insidiously, and in parts deeply seated, the change from their normal state passes on unobserved until a more palpable one is discovered in distortion of the spine itself, and of the whole contour of the trunk. The spinal column, as before remarked, depends for its rectitude on the muscles or stays that hold it in equilibrium, which it loses whenever the muscles of one side act with a force different from those of the other side. It is not the positive but the relative force that is to be considered; for the muscles of both sides may be and generally are weaker than those belonging to a healthy spine, yet a slight difference in the force of traction between the two sides results in the formation of a curve, into the convex side of which the muscles, acting with undue force, will be found inserted. The same effect is also produced, when both muscles are of equal strength, but those of one side are more acted on than those of the other; as when the pelvis is depressed on one side by lameness of the hip, knee, or ankle, or by a shortness of one limb, in which nature accommodates herself by bending the spine, so that the patient can bring the foot to the ground; or when the muscles leading from the back to the right shoulder act, by using the right arm exclusively.

I may here briefly advert to the opinions of the two most distinguished writers on spinal curvature in respect to two other causes of the disease. M. Guérin, who undoubtedly stands at the head of orthopedic surgery in France, in his treatise on the etiology of lateral curvature, maintains that a great number of cases are founded in a morbid retraction of one or more muscles, or a part only of a large muscle of one side, caused by some fault in the brain or spinal marrow; and he goes into a long process of reasoning to establish his position.*

I have thus, in duty to the reader who expects to have the new doctrines, emanating from high sources, posted up to the present time, barely alluded to Guérin's etiology of spinal distortions, published in 1841. He, however, does not refer all cases to this cause;

* His first point is, that manifest deformity of the nervous centres in new-born children, is commonly attended with spinal deviations; secondly, where no such abnormal alteration in the nervous centres manifestly exists, he has discovered it in some autopsies. But as such verifi-

knowing, as he must, that in a majority of them, more satisfactory ones could be assigned.

The other doctrine is that of Dr. Stromeyer of Germany, who with Mr. Dieffenbach holds there, the rank that M. Guérin does in Paris. He maintains that lateral curvature is produced by palsy of the serratus major anticus of one side, which he attempts to prove by numerous experiments. But as the practical inferences from this system are unimportant, they may be dismissed with the remark, that while adequate causes are assignable—and such in most cases do actually appear—there can be no occasion for searching after others, which if they are proved to have any effect, have very little to do in the indications of treatment.

The *remote causes* are numerous, but the principal one is muscular debility, general or local. Hence the disease is confined mostly to early years, before the muscular frame is fully developed, and occurs rarely after the age of 24, commonly before 18. It is peculiar to females, in whom it occurs a hundred times when it once affects the other sex. (*Shaw.*) It is confined chiefly to persons in easy circumstances; in fifty cases there will not be found more than one in indigent life. It affects mostly those who compress the muscles of the spine by stays, and thus prevent their due development of volume and strength; also those who use one arm exclusively in their daily avocations; and those who live secluded and inactive lives.

It would be impossible to find a class of persons in whom all these circumstances are so fully combined as in young ladies at boarding-schools, and it is in these, of all places, that the greatest number of cases are manifested. "It appears, from actual computation," says Prof. Caldwell, "that of the females who have been accustomed from early life to tight corseting, nearly one-fourth have some unnatural or disfiguring flexure of the spine. A Scotch gentleman of distinction assures us that he has examined about 200 young females in fashionable boarding-schools, and scarcely one of them was free from corset injury. Those whose spines were not distorted, had unsightly effects produced on their shoulder-blades, collar-bones, or

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cations are not often practicable, he endeavors to establish the point by analogy and inferences: 1st, from the fact that such spinal distortions are often co-existent with other diseases, as club-foot, wry neck, and permanent contractions of the joints, indicating a common nervous cause, and with diseases known to originate thus, as paralysis, epilepsy, &c. 2dly, he cites many cases of spinal curvature following cerebral and cerebro-spinal affections, and concludes that though there co-exist only some very slight affection, as squinting, or even none at all (for the spinal nerves may be the only ones affected), yet the effect may be a loss of equilibrium in the spinal muscles, and consequent deformity.

some other part of the chest, which stuffing or wadding would be required to conceal. Some were hunch-backed, and in not a few, one shoulder was higher than the other, effects which in our own country are much more frequent than is generally suspected." What do we actually find in these schools? There is feeble respiration, and consequently spare oxydization of the blood; inaction, and consequent debility, of the muscles, besides which, those of the spine are compressed and weakened by corsets; inclination of the body to one side whilst using the arm in drawing, writing, &c., and consequent enlargement or elevation of the right shoulder, which becoming stronger by use, gradually frees itself from the compression till it draws the spine into a curve. There is also a tendency to curvature in another part of the spine from the same causes; the constant efforts made to support the spine erect, with weakened muscles, induces a sense of fatigue, which the pupil seeks to relieve by inclining the body to one side whenever she finds the eyes of the instructer turned away from her.

The neglect of exercise and seclusion from fresh air in our schools, calls loudly for reprobation. The young of all classes of animals are prone to exercise, and by it acquire muscular development and energy. The wild savage, who ranges his native forest, free from the tyranny of custom, exhibits a spine straight as the winged arrow that flies from his sinewy grasp. "The attempt to alter the natural figure of the body by tight stays and tight lacing, the want of proper and daily exercise, by which the health is preserved, and the body enabled to carry on its functions, cannot be too strongly condemned."

Although confined mostly to the rich, there are cases of this disease among females of humble condition, whose occupation is sedentary, such as lace-makers, dress-makers, tailoresses, and the like; also persons carrying heavy burdens in one hand or on one arm or shoulder, as a young mother, or nurse carrying a child. An interesting case is given by Mr. Child, within the last year, where an aged aunt rested much of her time upon the left shoulder of her niece, and the effort of her muscles in sustaining her weight caused a curvature to the left side. Nor are young mechanic apprentices free from it. In such as are employed in printing and press work, where strong and repeated exertions of the right arm are required, the spine is apt to become twisted.

I should do injustice to the subject, were I not to mention among the causes of lateral curvature, depression of spirits. In reflecting

on a large number of cases that have come under my care and observation, a majority of them seem to be either caused or aggravated by deep affliction or disappointed affection. Some recovered from the acuteness of their grief with manifest improvement in the strength of the dorsal muscles, but relapsed immediately on the occurrence of new afflictions.

Curvature of the spine, like other malformations, as club-foot, fissure of the palate, hare-lip, &c., may be congenital. Such cases are too often neglected, and considered as helpless. The remedies usually employed for the disease in after years, may, if judiciously varied to suit the tender frame, give relief, if not effect a cure. They should be used as soon as the strength will bear, and before the bones become formed.

Spinal deviation may arise from debility coming on after the infantile complaints, such as small-pox, scarlet-fever, measles, hooping-cough, have too rapidly succeeded each other; and it may assume various forms, though most generally the lateral. In such cases attention should immediately be given to the state of the constitution, to fortify it as soon as possible by any means that may suggest themselves, and some slight support may for a time be necessary to arrest the progress of the distortion.

Symptoms.—Patients complain of pains in the pit of the stomach, in the side or in the abdomen, most frequently, however, in the back or chest, with general lassitude, and sometimes numbness of the limbs. But often no complaint is heard till the curvature is discovered by others. The child, from 9 to 16 years old, frequently attempts to prevent the dress from falling off one shoulder; or one shoulder appears higher or larger than the other; or one of the collar-bones, or one side of the breast-bone or the breast itself, appears fuller than the other. A swelling, as the parent supposes, is discovered at the ends of the false ribs of one side, as if a tumor were growing within; a thickness or fulness of one side, and a sinking in of the other; one hip appears to project, or, as the mother expresses herself, is "growing out;" one leg appears shorter, and the patient is in the habit of standing on one limb with a hand behind the back holding the opposite elbow; a peculiar manner of walking, one foot being swung round, and the shoulder thrown forward. I have in several instances known parents, and even young physicians, to mistake a curvature between the shoulders for a tumor under the shoulder-blade, and curvature in the loins for hip-disease.

The diagnosis of lateral curvature is easily understood. A plumb-line falling from the centre of the neck in the median line, will show the slightest deviation. The most important point to determine is the cause; whether it be diseased vertebræ, for this does no doubt exist in some rare cases, or whether it be a shortening or lameness of one limb, a weakness in the spinal muscles, or mollities ossium or rickets.

I have already adverted to the fact that where one curvature exists some length of time and destroys the equilibrium, there is an effort of nature to restore the central line of gravity, by producing a second, or compensating curve. M. Guérin remarks that an actual pathological curvature is never single. "I have," says he, "collected and described before the Academy, all the morbid specimens now in the capital, and cited all the cases of the living that I ever knew, all which show two, three, and sometimes four curvatures alternating, almost always three, very rarely two, and never one."

Authors differ in opinion respecting the primary seat of lateral curvature. Mr. Shaw contends that it always commences in the loins, the dorsal curve being secondary; and a majority of writers concur with him. Mr. Child and Mr. Coulson contend that the upper curve is first formed. When this discrepancy first arrested my attention, I was inclined, judging from the cases I had witnessed, to concur with Mr. Child. Since then, however, I have examined several other new cases, and found them all existing in the loins. They were, however, young subjects, short of eight years old, and not yet exposed to the influence of those causes that are known to be most productive of distortion, viz., corsets and undue exercise of one arm. On the other hand, press-men, who cause the disease by pulling violently with one arm, must certainly exert the tractile force high in the back by means of the trapezius and rhomboidei muscles; and females of boarding-schools exercise chiefly one arm, all which certainly favors the idea that, in such cases at least, the dorsal vertebræ are acted on by these muscles, and are drawn into a curve. It is probable, therefore, that the curvature may begin in either the back or in the loins.

When the curvature appears in one of these places, a compensatory one follows in the other place, giving to the spine the appearance of the letter *S;* and when a large lateral curvature occurs in the middle of the spine, there will be two smaller compensatory curves, one above and the other below, which will give to the spine the appearance of the Greek letter ζ Zeta.

Prognosis.—This requires caution. If the distortion come on between 8 and 14, and after one of the exanthems, as measles or scarlet fever, it may be considered as curable. If placed under early treatment, and especially when it is attributable to a known cause, as constrained posture or seclusion, which can be obviated; if the curve be in a gentle waving line, and not acute, and its convexity, if between the shoulders, is to the right side; if no constitutional cause preceded it; if little severe pain is felt; if no other disease or distortion exist that tends to keep it up; if no anchylosis has formed; all of which points are easily ascertained, there is every reason to hope for a cure. On the contrary, if the disease commenced in early years, and has existed for more than a year or two; if the patient exhibits symptoms of a diseased lung; if individual ribs are bent or twisted or ossified together; if the spine is anchylosed; if the limbs are of unequal length or dislocated; if there are strongly marked symptoms of scrofula or rickets; if the curve be abrupt; if it originated in an injury; if the convexity be toward the left shoulder, there is less if any prospect of a cure.

Treatment of Lateral Curvature of the Spine.—Perhaps no disease has been treated so variously, I might say oppositely, as lateral curvature of the spine. One surgeon confines his patient rigorously to the same position for months; another requires certain violent exercise for years; a third rubs and shampoos; a fourth invests his patient with artificial collars, stays, &c.; a fifth attempts to replace bones alleged to be dislocated; a sixth stretches his patient on an inclined plane; a seventh pulls at head and feet, or at axilla and pelvis, with pullies and sliding mattresses; an eighth lays them on a rolling bed; a ninth opposes the curves by what he calls sigmoid flexion and extension; a tenth leeches and blisters, or applies caustic and moxa, and many advise nothing at all. Each surgeon adheres pertinaciously to his favorite plan, and adduces so much testimony in its favor that we are bound to believe they have to a certain degree all been successful. We can account for this only by supposing that there is a variety in the causes, or else that practitioners have severally deceived themselves by attaching importance to success in one or two instances, and forgetting that there are so many distinct stages in the progress of a common case, that every mode may at times be applicable. Every newly invented instrument or remedy becomes the hobby of its inventor, who, having found it suc-

ceed in two or three cases whose peculiar nature had suggested it to his mind, forthwith proclaims its virtues to the public, as adapted to nearly all cases, and, ten chances to one, writes a smart octavo embellished with plates.*

To return from this digression; What is the best mode of treating lateral curvature of the spine? In answering this, it will be necessary to consider it in its different stages and aspects. In the first stage, there is more or less general debility, and we will suppose a slight curvature; the right shoulder, it may be, is slightly elevated, and the left hip slightly projecting. There is found a deviation of the spine from a plumb-line of perhaps one, two, or three inches, and in most cases an elevation or projection of the right scapula. When called to such a patient, the physician should at once obviate any known or suspected cause as far as possible; if at school, advise immediate removal, prohibit employments that require a sitting posture, or the more frequent use of the right arm than of the left, recommend exercise in the open air, and when fatigued a recumbent posture, instead of sitting; the back to be rubbed and shampooed or manipulated, shower-bath, and, if the season admit, sea-bathing. The exercise in the open air may be walking, games of sport, swinging, and various other gymnastic and calisthenic exercises, care being taken to use both feet alike, whether in standing or in moving about, and to preserve the standing posture no longer than is agreeable, and instead of resting the back in a sitting posture, to lie down.

Shampooing, or manipulation, consists in squeezing or pressing the muscles in the hand, and between the fingers, and kneading them with the clenched hand. The various modes of exciting the warmth of the part, and promoting a greater flow of blood to it, vary in their effects only in degree, and are to be carefully adapted in kind and extent to the circumstances of each case; but generally they are to be continued not less than an hour, and repeated twice

* The multiplicity of these books published in England alone, within the last ten years, is truly astonishing. In the short space of the two last years, not less than a dozen separate works have appeared, having nothing to recommend them over books already in the market, but some contrivance, or some alteration of a former one, for stretching and sustaining the body, all of which might have been published in two or three pages of some medical journal. Our own country, so far from being surfeited with such books, has not yet produced a single volume, or even a reprint of one, upon spinal distortion; and it is to be hoped that the subject will be delayed still longer, in order that the vast number of machines and remedies now in use in Europe and this country may be fairly tested, and their respective merits and adaptation to each variety of case well ascertained.

or thrice during the day, or as often as the patient can bear. The faithful application of this remedy, in conjunction with warm fomentations, which regular practitioners have neither time nor inclination to apply, has given great celebrity to a few individuals, called natural bone-setters. It would be well in large communities to have a few persons in the capacity of nurses initiated in the practice of shampooing or manipulating, as is the case in Edinburgh.

To the foregoing mechanical means should be added cold sea-bathing during the summer, and frictions with salt and brandy at other seasons. Internally should be exhibited ferruginous preparations in such form as can be best endured, and other mineral tonics, with such mild vegetable tonics as the patient can bear.

In the second stage, when the deviation is more considerable, and the ligaments, inter-vertebral substances, and muscles, are supposed to be materially changed from their normal state, and especially if it be rapidly increasing, the good effects of exercise in an erect posture are not so certain, and the distortion is more likely to resist all the common remedies above mentioned. The head and shoulders weigh upon it with more effect in proportion to the increase of curvature, and require to be sustained by artificial support, to prevent the exercise from proving injurious. The instruments contrived for this purpose are numerous, but they consist of such supports as are adapted to rest on a leather or metallic cincture reposing on the bones of the pelvis, and press upward against the axilla, like crutches, or a shaft may extend, from the cincture resting on the hips, along the spine and above the head, and by means of straps under the occiput and the chin, united on the vertex of the head, and made fast to the spinal shaft, effectually take off the weight of the head and shoulders from the curve during exercise. Drs. Mitchell, Kissam and Abbie have each invented, or have improved, instruments having this object in view. They are so contrived as to admit of both a turning and a nodding motion, and to allow free exercise, and are intended to be laid aside when the patient lies down. Such modes of support are preferable to splints with girths round the body, which compress the dorsal muscles.

The dorsal muscles may be exercised by having a strap under the chin, and passed over the vertex, and there fastened to one passing in like manner from the occiput, the two being made fast to a cord extending over a pulley in the ceiling, having a weight at the other

end. The patient may, in a sitting posture, a few feet distant from the pulley and facing it, draw the head backward and allow the weight to pull it forward again, and by thus repeating this nodding motion may exercise and strengthen the dorsal muscles, while at the same time he is straightening the spine. Swinging by the arms, or by the head and arms, and lying on an inclined plane, with suspending bandages under the arm-pits, are worthy of a trial; and in bad cases Mitchell's supporter, or Kissam's chair, or Guérin's bed, may be resorted to, with certain encouragement of benefit. All the local remedies and manipulations recommended in the first stage, as well as internal remedies, should be most thoroughly tried.

If the distortion depend on a contraction of the dorsal muscles that resists its return to a straight line, it may be necessary to divide them, as hereafter described in Guérin's plan, but this should rarely be done.

In the third stage we may suppose the bony structure much changed. The curve having increased and existed a long time, the bodies of the affected vertebræ become wedge-shaped, from side to side, the ribs and sternum are distorted, and the hip of the opposite side projected. I would here recommend that the patient be carried to an orthopedic establishment, as the most sure, if not the only way for a recovery. Parents and nurses in private dwellings will neglect to follow out the necessary plan of treatment, in all its details, and the physician himself will hardly be able to select and rightly time the various remedies that the case may require. All the means advised in the second stage must be rigidly persevered in, with the addition of other contrivances for compressing and restoring the spine and ribs to their normal state, by parallel extension with lateral pressure, or by Guérin's bed for sigmoid flexion and extension.

The means for parallel or lengthwise extension are applied by belts placed round the pelvis, and round the upper part of the trunk in the axillæ, to which ropes are attached that pass over the head and foot of the bed, and have weights appended there. Another cord may in like manner extend from the head to a pulley and weight. The rolling-bed of Shaw is made with a surface of elevations and depressions, adapted to meet and correct distortions. Also, there is a bed consisting of two cushions to which the patient is fastened, and which are drawn by weights and pullies attached to them at the head and feet, the patient's curvature being at the place where the cushions are drawn asunder, and a bed constructed with an inclined plane

is sometimes used. These and various other contrivances for extension and lateral pressure have been invented, and might be described if time and space permitted; but I think they all fall short in their efficacy of Mitchell's moveable supporter, Kissam's chair, and Guérin's bed for sigmoid flexion and extension, each of which I shall now describe.

Dr. Mitchell's moving supporter, represented in the plate, is very serviceable, as it enables the patient whilst suspending the head and shoulders and straightening the spine, to take exercise by walking about the room. I witnessed the decided improvement that attended its application in a comparatively very short space of time. A useful improvement would, however, be a spiral spring extending from the vertex of the head to the crane above. This would break the shock which might otherwise be given to the neck by taking a false step when suspended by the head.

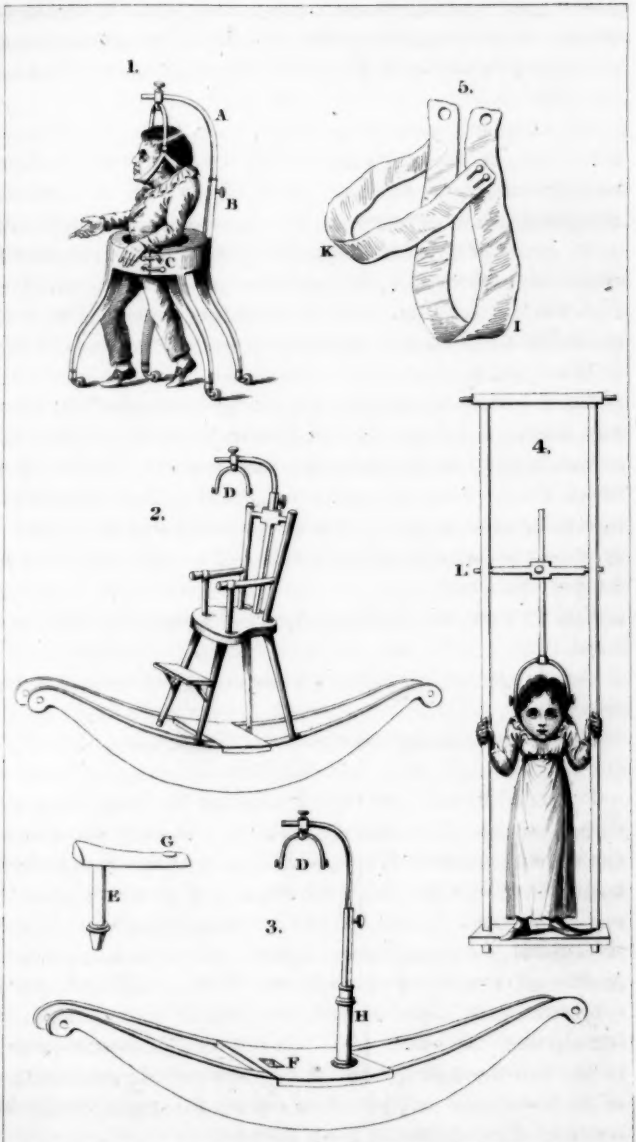
Fig. 1. A, a crane inserted in a socket, having a thumb screw, B, to fasten it when raised or lowered to suit the height of the patient. This socket is made fast to the encircling wood, C, which opens with a hinge for its entrance, and is supported by four legs with large castors to move about on. D is an iron supporter suspended by a swivel to the crane, and to which the head-pieces I and K, made of soft leather, are attached.

Fig. 2 represents a rocking chair with like contrivance about the head.

Fig. 3 represents a rocking horse, E and G being inserted at F to ride upon.

Fig. 4 represents a swing, L being a roller.

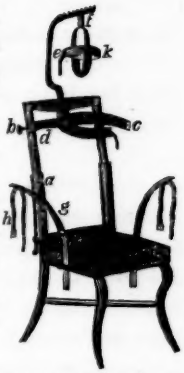
[3] Dr. R. S. Kissam, of New York, has invented an apparatus for correcting lateral curvature, which possesses great merit. It is a chair which combines the essential properties of *extension* of the spine, *contra-flexion* of its curves, and of *pressure* upon the abnormal projections of the ribs and scapula, at the same time it permits the patient to enjoy a sitting posture so as to read and sew. An important accompaniment to this would be a bedstead and mattress, representing an inclined plane, on which the patient might sleep, having a pulley extending from a belt under the armpits over the head of the bed through a pulley to an appended weight—the gravitation of the lower part of the frame during the night would keep up a constant slight extension upon the curve.



Wm. Mason Del.

F. Kearny Sc.

Kissam's Chair.



Explanation of the Cut.—a a. At the back of the chair are tubes containing spiral springs, the power of which are increased at pleasure by screws at the bottoms of the tubes.

d. Continuation of the back of the chair fitting into *a a.*

c. Arms for embracing the ribs, to support the body—resting on and attached to *d.* When *c* is adjusted by means of a strap, and the patient sits down, the weight of the body is thrown upon the springs contained in *a*, and the spine is constantly extended by their action.

b. Braces on which the arms are fastened, are so contrived, revolving on *d*, as to exert any desirable amount of pressure on the angular ribs of the convex side of the patient.

The junction of *d d* with the crosspiece at the top, are so made as to allow of motion; either side may be elevated or depressed, to assist in contra-flexure.

g g. Two springs fitted in the seat, adjustable to a given height.

h h. Straps to encircle the body, and attached to *g g*, the upright springs.

The springs *g g* produce contra-flexure, by acting on the convex sides of the curves of the spine.

e. A crane to which is attached *k*, the head piece, which is placed under the chin and buckled around the head; thus any force applied in extension acts equally on the occiput and chin.

f. A tube containing a spiral spring, which constantly extends the spine from the shoulders.

When seated in this chair the patient is at perfect ease; the spine is extended, and is bent in a contrary direction to the diseased condition. No organ is in the least disturbed in its action, and the circulation especially is not obstructed. The patient is at liberty to converse, read, sew, or amuse herself in any way not incompatible with a sitting posture.—*Lancet.*

An important addition to the chair of Dr. Kissam, would be large castors or swinging wheels under each post—which would enable the patient, with the aid of a staff, to roll about the room. Or the chair bottom might rest on the axle of two wheels of two or three

feet diameter, and having a third small one behind the chair to support and steady it. The patient might roll such a chair about in any direction by turning the two wheels with the hands applied to their rims. Such chairs are commonly used by patients affected with palsy, but have not, to my knowledge, ever been connected with a suspensory apparatus like Kissam's chair.

Guérin's Bed for Sigmoid Flexion and Extension.

The author commences his description of this by remarks on the various European machines that had preceded, and admits that they did good to some extent. He then enters on a mathematical calculation of the force of traction necessary to reduce a curve when applied at the head and heels, and at the two extremities of the spine by fixing the head and shoulders and drawing as directed in using several beds. He concludes that 83 per cent. of the tractile force is expended in stretching the vertebræ one from the other by overcoming the resisting ligaments, muscles and fibro-cartilages which unite them, and that the effect of a given force of extension in diminishing the curve lessens continually, till it finally becomes inoperative before the spine is straightened, and that hence arises the difficulty complained of by many authors of removing the last degrees of spinal curvature. The ill effects of such strong extension are weakness of the bonds of union of the vertebræ, and a tendency to relapse into a still greater deformity. Besides which, the great efforts made to remove the last degrees of deformity have also the tendency to efface the *natural* curvatures of the column as presented in profile, which are necessary to the firmness of standing, and to the graceful figure which should mark the female form.

He begins his description by comparing the curved spine to a staff with a bend in it, and proposes to straighten it on the same principle, not by pulling lengthwise at each end as is usually done with a curved spine, but as he would straighten the staff by seizing fast the two ends with the hands and pulling the convexity of the curve against the bent knee, so would he fasten the spine in a straight horizontal position, and bend the trunk in a direction opposite the curve by fixing a firm prop against the prominent convexity and bending the body against it by force applied above and below it. Furthermore, as he would in straightening the staff bend it beyond a straight line, in order that its natural elasticity might not reproduce the curve, so in applying force above and below the spinal curvature he would cause it to produce one in an opposite direction, and thus render the

spine perfectly straight, which those who trust to extension alone fail to do.

Guérin's apparatus consists of a couch divided into three portions, a small one resting under the curvature, another larger one to support the head and shoulders, and a third the hips and lower extremities. These are so connected together as to admit of being turned one upon the other. The body being laid straight upon this and confined in every part, the head and foot of the couch are turned from a straight line to a curve opposite to that of the patient's spine. This is done by a rachet and other apparatus which it would be difficult to describe on paper, and which is rendered unnecessary by the fact that several of Guérin's beds are in use in the orthopedic establishment of Dr. Brown of Boston, which may serve as models to make others by, and Dr. Mott of New York is supplied with them.

There is perhaps no contrivance for correcting curvature of the spine, whose value has been tested and promulgated under the authority of so imposing an array of names as Guérin's bed. Eight of the most distinguished surgeons of the Royal Academy of Medicine examined its construction and watched its effects on ten patients who were subjected to its trial, who reported as follows.

The first patient was aged 6 years, affected about two years ago with lateral deviation of the spine, with curvature of lower limbs, and lateral flattening of the chest; had followed no treatment. Fourteenth of January, 1836, she presented the following condition. A lateral dorsal deviation to the right, 7 inches of flexure, 3 curves. The upper curve, to the left, occupying the cervical and first dorsal, had 3 lines of flexure; the middle, to the right, in the middle dorsal, 5 lines; the lower, to the left, in the last dorsal and the lumbar, 6 lines. Height 36 inches 2 lines; general health poor, general rickets.

After 14 months' treatment, the spine was to all appearance straight; there were, however, some traces of torsion of the vertebræ; the subject had grown 2 inches 7 lines; general health excellent.

Second patient was aged 8 years, affected about 18 months with right lateral deviation, had had no treatment. At first she presented a lateral deviation in the middle dorsal, to the right, with one inch of flexure, with 3 curvatures, the upper and lower almost insensible in the direction of the spinous processes. Height 40 inches 10 lines; health weak.

Fourteen months after, the deviation was reduced to about one line; height increased 2 inches 3 lines; health excellent.

Third patient was aged 8 and a half years, had a lateral dorsal de-

viation to the left, with rickety curvatures of the limbs, and lateral flattening of the chest. The deformity was from birth, increased 6 years, then became stationary.

At first, presented a lateral deviation in the middle dorsal, to the left, 9 lines of flexure, with 4 curvatures and very considerable twisting of the column. First curvature occupied the last cervical and the first dorsal, flexure 2 lines; second, from 2d to 8th dorsal, flexure 7 lines; third, from 7th dorsal to 2d lumbar, flexure 2 lines; fourth, occupying the rest of the column, was insensible in the direction of the spinous processes. The surface of her back was very irregular, and the general appearance indicated a very old and deep deformity. Height 37 inches; general health bad.

Fourteen months after, the deviation had lessened one half; height increased one inch; health a good deal bettered.

Fourth patient, aged 9, had a lateral deviation of 4 or 5 years' standing, and ever since increasing.

At first, presented a lateral deviation to the right, in the upper dorsal, of 1 inch 3 lines, with 4 curvatures. The first and last were almost insensible in the direction of the spinous processes; the second, to the right, from the 2d to 7th dorsal, with 10 lines flexure; the 3d, 8th dorsal to 2d lumbar, 8 lines. Height 43 inches; health good; there was no other deformity.

Fourteen months after, the column was straight; there was little difference in the projection of the shoulders; height was increased 3 inches; general health very good.

Fifth patient, aged 12, had quite an inclination of the head to the left, with rotation to the right, and two curvatures, succeeding the deformity of the neck. This affection was developed as the sequel of scrofulous abscesses, of which the cicatrices had caused retraction of the skin, and left sterno-mastoid and platysma muscles; the deformity was considerable, and the left side of the head almost touched the summit of the shoulder. General health was very bad; there was many months ago an intense scrofulous ophthalmia.

Fourteen months after, the head was completely brought straight; the sides of the face being unsymmetrical still showed marks of deformity; but the axis of the head and neck was completely identified with that of the column; the supplementary curvatures of the spine had wholly disappeared; general health was excellent.

Sixth patient, aged 12, had 3 years since a lateral deviation in the lower dorsal to the left. At first, it had a flexure of 8 lines, and con-

sisted of 3 curvatures. The first, to the right, occupied the first 7 dorsal; flexure 3 lines; the second, to the left, occupied the 5 last dorsal and the 2 first lumbar; flexure 7 lines; the third, occupying the last lumbar, was 3 lines; height 47 inches.

At the end, the spine was straight; the two sides of the back symmetrical, and height increased 3 inches 2 lines.

Seventh patient, aged 14, had since birth a lateral deviation of the dorsal and lumbar, to the right, accompanied with a club-foot.

At first, the deviation amounted to 12 lines, and had 3 curvatures; the first, to the left, occupied the first 6 dorsal; flexure 3 lines; the second, to the right, occupying the 6 last dorsal and 2 first lumbar; had 8 lines of flexure; the third, to the left, occupying the rest of the spine, had 4 lines of flexure.

At the end, no trace was left.

Eighth patient, aged 12 years, had had 15 months a lateral deviation following a long intestinal disease.

At first, a lateral deviation in the dorsal and lumbar, to the left, 9 inches flexure, 3 curvatures. The first, towards the left, in the last cervical and 2 first dorsal; flexure 3 lines; the 2d, to the right, from 3d to 9th dorsal; flexure 5 lines; the 3d, to the left, occupied the last dorsal and the lumbar; flexure 7 lines. Height 50 inches; health weak.

At the end, the column was wholly restored. For 8 months it has remained straight; health greatly strengthened; height increased 3 inches 5 lines.

Ninth patient, aged 14, lateral deviation, with lateral flattening of the chest, dating from 2 to 3 years, preceded in infancy by curvature of the limbs.

At first, a lateral deviation in the dorsal and lumbar, to the left, of an inch in flexure, with 3 curvatures. The 1st, to the right, comprising the 6 first dorsal; flexure 3 lines; 2d, to the left, 6 last dorsal, of 6 lines; the 3d, to the right, occupying the last lumbar, was appreciable only by the torsion. Height 49 inches 3 lines; health very weak.

At the end, no deformity remained; height gained, 4 inches one line; health grown better.

Tenth patient, aged 17, had a deviation of the 3d degree, with considerable projection, of 9 or 10 years' standing, following a violent blow on the back.

At first, a lateral deviation in the middle dorsal, to the right; flex-

ure 19 lines; 3 curvatures. The 1st, to the left, in the last cervical and 3 first dorsal; flexure 5 lines; 2d, to the right, from fourth dorsal to first lumbar; flexure 15 lines; 3d, to the left, last 4 lumbar; flexure 10 lines. Height 58 inches; health good.

The first curve was wholly effaced; the second reduced to 10; third, to 5 lines; projection lessened; height increased 2 inches one line; general health excellent.

The Report summed up these cases as follows:

Five, complete cures; 2, nearly complete; 2, considerable improvement; 1, slight improvement. All this speaks favorably for Guérin's bed, but after much inquiry and experience, I am persuaded that equally favorable results would have followed the treatment by other mechanical contrivances, with appropriate constitutional and local treatment, used actively and perseveringly. The chair of Kissam, with some modifications, evidently combines the essential mechanical advantages of Guérin's bed. Neither of these, nor any other machines, are however alone sufficient to effect cures. Exercise, frictions, manipulations, tonic baths, the internal use of ferruginous preparations, and other tonics, are also essential remedies.

Operation for the Cure of Lateral Curvature of the Spine.

Within a few years, an operation has been proposed and performed with success, which will in some obstinate cases assist other remedies in effecting a cure that would else baffle every mode of treatment. It consists in dividing certain muscles with their fasciæ and tendons, which from their contracted condition perpetuate a curvature, in spite of all the ordinary means used to overcome it. There is some difference of opinion as to the originator of the operation, but it must be conceded that M. Guérin, of Paris, was the first to venture upon it boldly. He divides such muscles of the back and loins as appear in a state of tension, and sometimes extends his incision through the trapezius and rhomboidei along near their origin from the spine, and parallel with it, to the length of five or six inches, and at the loins through the common mass of the sacro-lumbalis and longissimus dorsi. "In all these operations," he remarks, "I have divided the muscular bundles, the aponeuroses, the tendinous sheaths, the vessels and nerves. In some cases there has formed a very considerable effusion immediately under the skin, and between the lips of the wound. I have," he adds, "closed the little orifice

at each dressing with a morsel of diachylon, and when the effusion has been considerable have made moderate pressure on the external swelling. All patients thus operated on, have by the third day been able to get up and walk, and to submit to mechanical pressure intended to correct the deviation of the spine, now released from the cords that held it."

He considers it as an established fact, that divisions of the muscles, cellular tissue, nerves, tendons, and vessels of small calibre, provided the incision be made under the skin, and air be carefully excluded, are exempted from inflammation, and that an immediate re-organization is effected somewhat after the manner of union by the first intention.

There are instruments invented specially for this operation, which bear some resemblance to a bistoury, but are much smaller and longer, the blade or cutting part being an inch or two long, and continuing in the form of a wire four or five inches, of the same width as the blade, to the handle. These instruments, after the model of those used by Guérin, are to be had in New York and Philadelphia.

Child's manner of operating.—"The plan I usually adopt, is to place the patient on my extension couch, or to raise her by means of pullies which I have fixed for this purpose. A cap should be provided, made with strong webbing. One band must pass in a circular manner round the head, and fasten beneath the occiput with a buckle, whilst another of the same material should encircle the sides of the head and face, the chin being received into a hollow made for that purpose. Where these bands meet on the vertex of the head, a strong loop must be attached, which, when extension is made, must be hooked into the cord which passes over the pulley, and in a very gentle manner the body is to be raised from off the ground. If by any of these means the spine is observed to move toward the mesial line of the back, the operation may be undertaken with every prospect of success; but if, on the other hand, the spine appears rigid, and betrays no symptom of mobility, we must be wary in raising hopes that can never be realized, by submitting the patient to a useless, although simple operation.

In the treatment of lateral curvature of the spine, under our present notice, there are three points to be considered: first, to release the spine from the power which retains it in its abnormal situation; second, to restore the vertebræ to the spinal line of the back; and

third, to prevent these bones from again relapsing into their unnatural situations.

The first of these is attained by a very simple operation, namely, by a division of the contracted muscles.

There are two modes of effecting this division. Thus, for that description of curvature which comes under the first division of our subject, in which the trapezius and rhomboid muscles have suffered from inordinate action, their division must be effected in the following manner:—

The patient being placed in a prone position, with the chest elevated and head hanging over a table, tension of the trapezius and rhomboid muscles must be made by drawing the affected shoulder upwards and outwards. A straight narrow bistoury of sufficient length is then to be introduced, at a point corresponding with the greatest convexity of the curve, and to be passed carefully upwards, with its flat surface between the skin and posterior surface of the muscles, and as close as possible to the spine, until it has reached to about the superior angle of the scapula; by a semi-turn of the handle, its cutting edge will then be brought in contact with the trapezius muscle; it is then to be withdrawn, care being taken that a complete section of the trapezius and rhomboid be made close to the spinous processes of the vertebræ. By observing this latter direction, we shall avoid much loss of blood. Having completed this section, the bistoury must be again introduced into the same opening, and carried downwards in a similar manner, withdrawing it as before, and taking care that every portion of these muscles be separated from their spinal attachment.

In the above operation there need be no apprehension of hæmorrhage, as the only artery of magnitude traversing these muscles is the posterior scapular, which, if proper precaution be used, need never be wounded.

For those which come under the second division of our subject" (lumbar curvature), "the operation is, if possible, still more simple. For these a transverse section of the lumbar muscles is to be made, and on the side corresponding with the convexity of the dorsal curve. The wound need not be more than a quarter of an inch in depth" (this must depend on the thickness of the cellular substance), "the most important point being to secure a complete division of the vertebral aponeurosis. The operation may be accomplished in less

than thirty seconds, with the most trifling loss of blood, and the patient, if possessing moderate courage, complains of but little pain, and is enabled to walk to bed.

The operation may be performed in the following manner. The patient being directed to bend forwards, a straight, narrow bistoury must be passed between the skin and vertebral aponeurosis. A retraction of the muscles immediately takes place, leaving a space of at least half an inch between the divided surfaces. A small piece of adhesive plaster must be placed over the wound, which need not be more than the eighth of an inch in extent, and a compress applied, well secured by means of a roller. The patient should then be placed on a hard mattress on the face, and kept in this position for three or four days. The wound will generally heal in less than a week, and no further inconvenience will be felt.

The operation will, of itself, remove the lumbar curve when present, without any further interference; but as far as the dorsal curve is concerned, although it will be considerably diminished, yet must only be regarded as one important step towards a permanent cure.

The patient being allowed to rest about a week subsequent to the operation, we must then have recourse to such means as will assist nature in repairing the distorted vertebræ.

The position in which the patient lies should be our first consideration. After the time above specified has elapsed, the prone position should be changed, and a folded pillow placed in apposition with the dorsal curve, and in such a manner that the patient lying on the side, with the upper and lower extremities bending over it, the intercostal muscles on the opposite side are kept upon the stretch, and the ribs separated from each other. The patient should then be induced to grasp with the left hand a rope suspended from the ceiling, and at such a distance from the rhomboid and trapezius on the stretch, and at the same time endeavor to bring the arm to the side. By this latter movement, these muscles are thrown into a state of activity. This should be repeated frequently during the day."

He then recommends extension, preferring his own couch, which consists of a belt round the pelvis having a line attached running over the foot of the bed to weights which are appended, and at the head of the bed three pullies, with lines leading to the head and two shoulders, and made fast to a cap fixed under the chin, and the straps under the arm-pits, weights also appended to the other extremities of the lines. Pressure is to be applied to the convexity by the hand,

which is to follow each act of respiration, care being taken to handle the ribs gently; and thirdly, friction along the back with some stimulating embrocations, and the judicious arrangement of well-regulated forms of exercise. The patient should not be permitted to sit up or walk about after the operation, without wearing some kind of support; and if great care in this particular be not observed, much risk will be incurred of the spine relapsing into its former situation.

When a curvature exists for some time, one or two more will ensue, as a means of restoring and preserving the centre of gravity, and as before observed, are to be considered as compensatory. Now the effect of removing the first large one, whether it be in the back or in the loins, by the operation, will be to correct the others by the same tendencies that produced them, to wit, the efforts of the muscles to restore the equilibrium in the new condition of the spine.

I have purposely omitted to include in the foregoing cases ulcerations of the bones, as causes of lateral curvature, whether proceeding from local injuries or from constitutional causes. In these, anchylosis must be the aim of the surgeon, to procure which he will prescribe entire rest in a recumbent posture, stays in the form of splints, cuirasses and other artificial supports,—to allay inflammation, cupping and leeching,—and to arrest the ulcerative process by issues, setons, &c. In no other kinds of lateral curvature ought these counter-irritants ever to be used. Among the best are veratrine and iodine ointment. If the disease is founded in scrofula, the internal use of iodine; if in syphilis, mercurials, alteratives, and diaphoretics, as decoction of the woods and syrup of sarsaparilla.

In all bad cases of lateral curvature, it is advisable, before commencing a regular and systematic course of treatment, to take a cast of the figure in plaster of Paris, and to repeat this in two or three months, or as soon as a change is known to have been produced. Such casts furnish accurate information as to the amount of distortion, and the progress made in relieving it, and afford satisfaction to the patient, as well as encouragement to persevere. In slight cases, a blotting paper may be applied along the whole length of the spine, and dotted over the centre of each spinous process, and a plumb-line may at the same time be marked, to show exactly the amount of curvature that may exist; and this may be repeated at even shorter intervals, by re-applying the same paper.

The average rate of improvement, in cases where the lateral deviation is an inch and a half or two inches, is half an inch the first month,

and an eighth of an inch every succeeding month. In rare cases, Mr. Ward thinks he has done better, when the subject was young, and the progress of the disease rapid. He admits, however, that he does not by any means restore lateral curvatures perfectly straight in all cases—that under the best means he could use, "many would diminish one half or two thirds, or to within a quarter of an inch of straight, beyond which point no advance could be made, however faithfully applied, although there was no disease of the bones." Had he however combined the sigmoid extension of Guérin, or adopted it after trying his own plan, he would have produced an entire straightness with more certainty,—an important point, since the nearer the spine is brought to this by treatment, the less liable will it be to relapse.

There will occur in bad cases of lateral curvature of long standing, anchylosis of the vertebræ, and sometimes of the compressed ribs. In all such cases, the patient must be content with palliatives in the form of supports, as any attempt to stretch the spine can do no good, and may produce serious evil. Among the signs of an anchylosed state of the vertebræ will be the unyielding nature of the curve, when the hand is placed on the convex side, and also its fixedness when the head and shoulders are bent back or forward as far as possible.

ANGULAR PROJECTION OF THE SPINE; COMMONLY CALLED HUMP-BACK.

Arranging spinal distortions in the order of their frequency, we come next to consider ***hump-back***. This results from the loss of structure of a part of one or more of the bodies of the vertebræ, which form the anterior support of the spinal column. This produces a sharp projection backwards, with more or less irregularity in the shape of the chest, elevation of the shoulders, spreading out of the ribs, the false ones being everted by the upward pressure of the abdominal viscera, and thus producing the appearance which is called ***chicken-breasted***. There is also a wasted condition of the parts below the distortion. The deformities will however depend much on the nature and position of the disease in the spinal column. If in the dorsal vertebræ, the chest will be flattened, either at its anterior surface, or laterally, or one side may be more compressed than the other. If seated in the cervical vertebræ, the chest will be flattened, and the sternum drawn downwards and inwards, and, on account of the inaction of the scaleni muscles, there will be difficulty of breathing. Ordinarily the most striking mark of hump-back, on viewing

the patient in front, is an elevation of the shoulders towards the ears. Should the lumbar vertebræ be the seat of the affection, the chest settles down towards the pelvis, so as sometimes to bring the ribs in contact with the crest of the ilium.

The disease is not, like lateral curvature, confined to females mostly, but attacks both sexes alike. It appears much earlier in life, most commonly before the fifth year; and it is more likely to run in families, from the fact that a tendency to it is often founded in scrofula.

The disease, however, arises from three causes: caries of the bodies of the vertebræ, ulceration of the interposed cartilages, and a scrofulous condition of the spinal column. In most cases the disease is dated by the patient or its friends to some external injury, as a fall, or blow, or some sudden shock or jerk. Three cases are now present to my mind, where a child fell upon the floor at the age of three years, one that was hit by a brick-bat, one that was kicked in the back at school, two that strained their backs in jumping, and several others who are unable to assign any such injury.

It is apt to be attended at an early period with numbness of the limbs, or an uneasy feeling, pain in the back, great difficulty in ascending a hill or stairs, palpitations, oppressed breathing, and pains in the head. As the disease advances, the parts below become more or less paralyzed, and the sphincters lose their power. In some cases the patient will be able to stir about for some time after the accident, as if nothing had happened; in others there is an immediate attack of benumbing pain in the back, and total loss of muscular power. The disease often ends in anchylosis, and the patient is apparently well for life, although the deformity is very considerable. It is the opinion of Mr. Shaw and others, that paralysis is not always proportioned to the amount of pressure on the spinal marrow. Dr. Hunter attended a patient who was able to walk to the day of his death, and was free from palsy; and yet there was an evident encroachment of one of the vertebral bodies upon the spinal marrow, compressing and diminishing it to half its natural size. Mr. Hunter says that had he not carefully watched every symptom of the disease, he should have thought, from the state of the preparation, that all the parts below compression must have been paralyzed.

Treatment.—Some difference of opinion has existed as to the best mode of treating angular projection,—less so, however, than that of lateral curvature. Mr. Pott's writings have had higher authority and

influence with the profession for many years than any person's. His name is so identified with it, that on the continent this form of distortion is called the "*maladie du Pott.*" He was the first to give an accurate account of its pathology, and his system of treatment, making allowance for peculiar cases, and for some new medicines that have been since discovered, is on the whole the best that has been proposed. It is nearly all comprised under the head of counter-irritation, as issues and blisters. Unfortunately, Mr. Pott's high authority, and the general deference paid to him, have swayed the profession into the belief that all kinds of spinal distortion should be treated with counter-irritants indiscriminately; and hence an egregious error has been committed of late years, in inflicting issues, setons, actual cautery, moxa, tartar emetic ointment, and every torment of the kind that physicians could lay their hands on, until these remedies have fallen into disrepute in all kinds of distortion.

The leading indications are to prevent the increase of distortion as soon as possible, to stay the progress of ulceration of the vertebræ, and to produce anchylosis. The first is answered by taking off the super-incumbent weight from the part diseased, either by assuming a horizontal position or by artificial supports. In lateral curvature, a dorsal recumbent position was recommended; but in this a facial one is preferable, as it not only removes the pressure of the head and shoulders, but prevents the abdominal muscles from contracting and drawing the sternum towards the pelvis, and if the sternum projects, as it sometimes does, the weight of the body will compress it.

It is necessary to avoid violent shocks and sudden motions. I have known a child apparently cured with a small hump, who broke up the anchylosis by falling whilst running, and thereby caused death. For the same reason, strong extension should be avoided.

In all cases of angular projection there is a tendency to suppuration, which our best directed efforts cannot always prevent. This may point in different parts of the spine, or descending into the pelvis may appear by the side of the tuberosity of the ischium at the groin, or like lumbar abscess under the fasciæ of the thigh. It never breaks into the large cavities through the pleura or peritoneum. But it is not uncommon for it, when the whole body of the vertebra is destroyed, to press on the spinal marrow and produce paralysis,—or, the inflammation, extending from the bones or intervertebral cartilages to the coverings of the spinal marrow, may produce the same effect,—or lastly, the acuteness of the angle formed by the entire

destruction of two or three bodies may cause a bony compression of the spinal marrow. Hence it is that we so often find numbness and emaciation of the lower extremities, accompanying angular projection. Nature, however, makes wonderful efforts to overcome the paralysis. Mr. Abernethy used to exhibit a patient in St. Bartholomew's Hospital, that recovered after being paralyzed more than two years; and Baron Larrey was fond of showing a skeleton where the like effect existed a still longer time, but yielded as he thought to moxa,—three lumbar vertebræ being destroyed, and the contiguous ones united by anchylosis. Surgical aid should be called early, and all exercise suspended. A chronic inflammation caused by the accident is progressing, and will end in caries of the bone, or ulceration of the interposed cartilage, and consequent angular projection. If ulceration begins in the centre, side or anterior part of the intervertebral substance, it very soon comes in contact with the bone, and produces a disease of its cancellated structure.

"Lateral curvature may also result from this cause, for when the centre of the intervertebral substance is the primary seat of the disease, it may extend itself either forwards or sideways, and would therefore produce two different results, viz. angular projection when the anterior part of the bone participates in the disease, and lateral curvature when the sides of the bodies of the vertebræ are affected." *(Tuson.)*

Mr. Tuson gives a view of Mr. Venal's apparatus with a patient upon it, which allows the person a convenient table for his book or plate; by a similar arrangement a young lady might play upon the piano. The contrivance may be useful in lateral curvature as well as angular projection.

The *spinal reliever*, of which several kinds have been invented by Shaw, Abbie, and particularly that of Mitchell and of Kissam, will be of service in some cases; while it is worn, the deformity cannot increase, the weight of the head and shoulders being entirely taken off. In this case it is that the cuirass is valuable.

In very young children, as also in others, some advantage will be gained by wearing a small busk when not on the inclined plane. It should be firm and thin. In a recent case, where the disease came on when the child was only two years old, and where every thing looked discouraging, a cure was effected by wearing splints, in connection with other treatment. Suppuration advanced, and a large quantity of sero-purulent matter was discharged spontaneously at the

thigh; yet the recovery was complete, with anchylosis of two or three vertebræ, and with some projection. This the surgeon should always expect, and should inform the friends accordingly. Any attempt to extend the spine, as recommended in lateral curvature, might defeat the efforts of nature to form anchylosis, which is the only mode she takes to effect a cure. The utmost that can be safely done in this way is to take off the superincumbent weight, to preserve the diseased bones in apposition and quiescent, until a gelatinous substance is deposited in the diseased part, followed by osseous matter, that fills up the space of bone and cartilage, producing anchylosis. Hence the importance of rest and a recumbent position.

The second indication is to arrest the morbid tendency of the bones to caries, and prevent the formation of matter,—by counter-irritation. Among the best counter-irritants are caustic issues, veratrine ointment, and setons. If there be strong marks of scrofula, and especially an hereditary taint, the issues and seton are not so good as iodine ointment, and ointment of the hydriodate of potash. These may be continued on each side of the spinous processes of the projection for some weeks or even months. The discharge is to be continued for months, and the general scrofulous tendency should be treated with iodine internally in varied forms, vinum ferri, and liquor potassæ,—with frictions, ablutions, sea-water bathing, a good diet with plenty of milk.

EXCURVATION, OR POSTERIOR CURVATURE.

This comes next in the order of frequency. It differs from hump-back in being a gradual curve, such as is often seen in very old men who have suffered much from rheumatism; and the shoulders do not rise towards the ears. Its seat is more in the dorsal and cervical vertebræ. The patient is not affected with severe pain, but there is a sense of constant uneasiness, a disinclination to move, and coldness of the extremities, sometimes paralysis. It is sometimes caused by a softness in the structure of the bodies of the vertebræ, and of the intervertebral substance, by reason of which the extensor muscles are unable to retain the column in the erect position, and the anterior muscles of the trunk bend the body forwards.

It generally appears before the age of puberty, and more particularly when dentition is in active progress, whence it has been supposed that this process has some influence in promoting its development; it is however known to occur at a later period of life. It may

exist for years under the appellation of rheumatism in the back; and in this state anchylosis may and often does take place, causing stiffness of the back. If the cervical vertebræ are the seat of the affection, they form an arch, the head falls forward, and the chin is brought near to the chest.

As caries with angular projection has some resemblance to excurvation, it is necessary to distinguish them. The curve is here more of a gentle swell, not angular or prominent like the other. Lumbar abscess occasionally presents a roundness, which might be mistaken for posterior curvature of the loins.

It is stated by high authority that enlarged mesenteric glands, by pressing against the bodies of the vertebræ, cause them to become softened, at the same time that they prevent the free flow of the chyle into the thoracic duct, and thus cause emaciation and diminished nourishment to the bodies of the vertebræ. In such cases the disease is founded on scrofula, and must be so regarded in the treatment, which should be by liquor potassæ, iodine, and tonics generally, with generous diet, among the best articles of which is new milk.

If the disease proceed from mollities ossium, the same alterative, tonic and nutritious course should be pursued. If founded in chronic rheumatism, frictions, liniments and stimulating plasters will relieve the pain and uneasiness. If anchylosis has not formed, there will be less risk in this disease, than there is in angular projections, in endeavoring to straighten and support the back.

ANTERIOR CURVATURE, OR INCURVATION OF THE SPINE.

This is of rarer occurrence than other kinds of distortion, and from the rapidity of its progress is more serious. It is apt to embarrass the thoracic, abdominal, or pelvic organs, according as it happens to project into either of the three organs, and it produces great external deformity. It may arise from the same causes as the other distortions, and also from rickets, mollities ossium, syphilis, scrofula, &c. It is produced in the loins by the early shortening of one limb, and by hip disease. If founded in constitutional disease, the nature of it should be ascertained before commencing the treatment. "In most cases, our diagnosis may be accurately formed from the general symptoms that accompany the primary disorder; thus rickets may be known from some of the bones, as those of the leg or arm, being softened and bending under the weight of the body—mollities ossium,

which is very rare, from great pains over the body, feverish and scorbutic symptoms, startings, inquietude, and a copious white sediment in the urine—syphilis and scrofula, from the distinctive character of their respective diseases, which are too well known to require any particular description."

It is unnecessary to dwell on the nature or treatment of the predisposing constitutional disease. The distortion requires, in all cases, artificial support and gradual extension. The apparatus for these should be frequently examined, as there is danger, when rickets exist, of their injuring the bones of the pelvis. Light wood splints affixed to the curve by means of rollers, are of great use in preventing extreme curvature. Cases have occurred where the back part of the head has nearly rested on the sacrum; and one of these, reported by Dr. Harrison, was perfectly cured. The plan pursued was extension by means of pads placed first between the head and the sacrum, and as soon as any part yielded to it, the improved position maintained by artificial supports, and then more extension employed till farther improvement took place; by continuing this treatment, the patient was ultimately quite restored to health and a symmetrical form.

RICKETS, AND MOLLITIES OSSIUM.

Having finished the subject of what are strictly called spinal distortions, it seems proper to advert to a disease of the vertebral column, which sometimes, but not generally, exhibits distortion; I mean rickets. The name is derived from *rachis*, or spine, and is, in technical language, sometimes written rachitis, or inflammation of the spine. We have already adverted to this disease as a frequent cause of incurvation, and it may be connected with other forms of distortion; but on the other hand, the spine may be shortened by rickets, without deviation of any kind, and it should therefore be considered by itself.

Rickets is characterized by crookedness of the long bones, particularly the legs, by swelling of their extremities, prominent abdomen, large head, and often precocity of intellect, by leanness, general debility, indigestion, &c. It occurs in early childhood, in damp or confined situations, under bad nourishment. Its progress and termination are variable. Some eminent men have identified this disease with scrofula, but it is very remotely connected with it, thinks M. Guérin, whose opinion is founded on 500 cases, and who has bestowed more attention on it than any other person.

It has also been confounded with mollities ossium, which it very nearly resembles; but rickets invades the system at the age of one or two years, whilst *ramollissement* is preceded by a general vice of the system, as syphilis, scurvy, rheumatism, cancer. Unlike these diseases, rickets attacks the skeleton by fractions, one after another, and is very slow in its progress. When it has invaded the skeleton generally, it gives to it the appearance of being pressed down shorter, and the lower edge of the false ribs being everted by the shortening of the vertebral column, gives the appearance called *pigeon-breasted.*

Its morbid changes in the skeleton begin at the base, or lower limbs, so that the spine generally becomes affected after the pelvis. "It very rarely begins in the spine," not oftener than in one case out of forty, and the cases of rickety legs without rickety spine are as ten to one. The disease does not extend to the spine until it has existed in the legs about one year. Hence it may be inferred that where curvature or other distortion of the spine is not preceded by rickety legs, it is not caused by rickets. It affects the spine between the second and third year.

The *treatment* of rickets is almost wholly hygienic. Pure air, a healthy situation, nourishing diet, exercise, sea or common cold bathing, and tonics, afford the best prospect of success. The spine should be exercised by rubbing and shampooing.

LUMBAR, OR PSOAS ABSCESS.

This is a disease of the lumbar vertebræ, commonly of the anterior surface of the bodies from the outset; at other times it begins in the soft textures contiguous to them, and extends not only to their surface, but ultimately to the cancellated structure of the bodies. Although the seat of the disease is in the lumbar vertebræ, where ulceration takes place and large collections of matter form, yet the pointing of this is various, so as to puzzle the young surgeon in identifying its nature. The matter may point at the lumbar region, at the groin, at the inner part of the tuber ischii, and under the fascia of the thigh.

The disease of the vertebræ, in these cases, may be the result of accidental sprains or concussions, by violent exertions and carrying heavy loads. It may also spring from constitutional causes, as scrofula. Abscess may form and point at the same places, when the dorsal vertebræ are the seat of the caries; but in such cases, the di-

aphragm, if the disease be near its crura, will suffer some embarrassment in deep inspiration, and besides we may determine nearly the seat of the disease by the sensibility of the part to pressure.

Psoas abscess is characterized by unremitting pains in the loins, which are increased by exercise. Commonly the first suspicion of the existence and true nature of the disease is awakened by the appearance of a large tumor, soft and fluctuating, in either of the situations before mentioned, most generally below Poupart's ligament, which lessens somewhat in a recumbent posture, and hence is apt to be confounded with femoral hernia. There will however always be some pain in the loins, difficulty in straightening up when rising from a chair, and when lying on the back there will be a weakness felt on raising up the thigh, in consequence of the pressure of the matter on the psoas muscle.

Ordinarily the disease may progress to a fatal issue, without producing much or any distortion of the lumbar vertebræ. I have, however, seen cases that caused angular projection; the deformity, if there be any, will depend on the number and extent of the diseased vertebræ.

The constitutional derangement produced by this disease varies. I have known several persons who kept about their usual occupations, complaining little, until a tumor had appeared and existed for some time in the thigh, and after the contents of this tumor had been repeatedly drawn off. But when the disease becomes aggravated by the admission of air into the sac at the loins, great suffering ensues, hectic fever, debility, pain, restlessness, loss of appetite, profuse perspirations. In some cases there is palsy of the lower extremities. The leading aim in the cure is to effect anchylosis. To this end, the prominent indications are rest in a recumbent position, discharge of the matter, when it points near the surface, by a valvular opening of the swelling, which may be repeated as often as it fills, care being taken to prevent the introduction of air while the fluid is escaping, and to cover the opening with adhesive plaster and compresses, so that it may heal by the first intention. A frequent repetition of the opening may gradually contract the dimensions of the internal cavity, and thus tend to a cure.

The local treatment should be issues, constantly and perseveringly applied over the part affected, and strengthening plasters wherever there is room for their application. When a curvature begins to appear, spinal supports best adapted to the case may be of service.

Where scrofula is suspected to lie at the root of the evil, iodine should be freely administered. Tonics and nutritious diet will be necessary to support the strength under the constant drain. Every means that can tend to support and strengthen the system should be tried.

INJURIES OF THE SPINE.

When the spine is fractured, death usually ensues from compression of the spinal marrow. This may be produced by the displacement of a vertebra; or a fragment of the arch behind the body may be forced in so as to lacerate or even divide the marrow; or there may be an extravasation of blood that will compress the marrow; or, lastly, the theca vertebralis which surrounds it, may from inflammation swell and compress it.

It is not every case of fracture, therefore, which produces palsy immediately or soon after, that necessarily proves fatal; extravasated blood may be absorbed, and swelling may subside and liberate the marrow from compression. Nor is this all; a considerable degree of compression, say of one fourth or even a third of the marrow, may exist consistently with the performance of its functions. The case related at page 360 confirms this fact.

The effects of such injuries as prove fatal, are paralysis of the parts below; and consequently their extent must depend on the situation of the injury, whether it be high or low in the column. If it be high in the neck, as is usually the case in executions, death ensues instantly; if low in the neck, respiration is not immediately prevented, —in one case which I have seen, the patient sank gradually in a few hours; in the dorsal vertebræ, the patient may live two or three days. In two cases that have come under my care, one lived three or four days, and the other a week: the first of these plunged into water from a height, and struck his head on a hard sand bottom, the water being shallower than he was aware of, and fractured his spine; the other fell from the top of a house-frame, with his back across a piece of timber, and displaced two vertebræ with fracture of the oblique processes. In such cases the paralysis affects the contractile power of the hollow muscles below, as of the rectum and bladder, causing retention of their contents; but after a time, the bladder by becoming distended overcomes the resistance at the neck, and pours out its contents in a constant dribbling.

It has been attempted by Mr. Clyne and Mr. Tyrrell to remove a portion of the depressed bone; but the cases proved fatal, and most

authors advise to abstain from such experiments. Extension, which is proposed by some, I know from observation to be the extreme of torture, and not likely to prove beneficial.

The treatment in such cases should be entire rest, local bleeding with leeches, evaporating lotions, cleansing the bowels with enemata, drawing off the urine, and anodynes.

INFLAMMATION OF THE CANCELLATED STRUCTURE OF THE VERTEBRÆ, AND OF THE INTERVERTEBRAL SUBSTANCE AND SURROUNDING MEMBRANE.

We have already dwelt on the occasional effects of these inflammations now under consideration, in the form of posterior and angular distortion, and psoas abscess; but they often exist without any such consequences, and hence they seem entitled to a separate chapter. The textures here involved are subject to inflammation from strains, over-action, external violence, and constitutional affections, and once commenced it is likely to be protracted by the constant motion of the spine, till it at length involves the spinal marrow, by causing a swelling of its investing membrane. It is apt to form an abscess in the back. A lady, after walking fast a long time, felt something give way near the upper lumbar vertebræ. In about three months, she had constant pain in the part, and after a few weeks there was a small fluctuating tumor near the end of one of the transverse processes. This was punctured, and discharged about a tablespoonful of matter. Soon after, cold shiverings and rigors, followed by fever, set in, and soon extensive suppuration, which seemed to extend upward along the spine, and in a few weeks longer produced death by extreme nervous irritation.

Another case occurred of a man who sprained his back in lifting, and felt something give way. Soon after, violent inflammation set in, a tumor formed over the lumbar vertebræ, but the matter was so deep-seated that there was some doubt of its existence. Reflecting on the magnitude and density of the fascia of the sacro-lumbalis and longissimus dorsi, and the consequent difficulty of bringing the matter forward, I made a longitudinal incision through the fascia, two or three inches long, over the part, and one inch deep, and directed cataplasms to be continued. The advantage thus gained was, that the matter soon reached the incision, and bursting through, relieved the patient much sooner than without it, thus probably saving his life.

But in all such cases of severe local pain, resulting from sprain, and not threatening suppuration, leeches and cupping are to be used freely, and rest. The spinal supporter may be serviceable. It may be fixed with crutches under the arms, resting in a belt surrounding the hips.

SPINA BIFIDA, OR HYDRO-RACHITIS.

This is a malformation which occasionally presents itself to our notice, and consists of an elastic swelling, that is generally situated in the loins, but sometimes appearing on the back of the sacrum, and occasionally in the dorsal and even cervical vertebræ. It proceeds from imperfect development of the arch of one of the vertebræ, and absence of the spinous process. The spinal membranes, deprived of their ordinary support, yield to the pressure of the fluid which they contain—which also is secreted in unusual quantity—and bulge out, forming a fluctuating tumor in the middle of the back. Sometimes the tumor becomes pendulous. The legs are often palsied. Pressure on it will produce convulsions and coma. It is supposed that the fluid communicates with the lateral sinuses through the fourth ventricle of the brain. The ordinary course of the case is, that the tumor enlarges, the skin becomes distended, inflames, and ulcerates, the fluid is discharged, the spinal membranes inflame, and the patient dies. In some rare cases, however, the skin being stronger, the patient may survive to adult age, and in one or two that I have heard of, have worn a silver cup over the tumor. Mr. Tuson says he has seen ten cases of the disease, all of which proved fatal. I have seen only three, all which, though differently treated, were fatal; one at the age of two months, one of a year, one only three weeks.

The most successful treatment I have recently heard of was that adopted by Mr. Dubourg, which I will extract from the Gazette Medicale of Paris, of July, 1841. After detailing his failure in one case, he gives two cases where he succeeded.

"In the spring of 1837 I was called to a female infant, eight days old, who had a congenital pediculated tumor on the lumbar region, about the size of an apple. Its color was livid from the development of a venous net-work, giving it the appearance of a vascular fungus. It was evident, on examining the vertebræ, that they were defectively formed, the edges of a bony opening being discovered. The tumor was opaque, its walls much thicker than usual, and it ap-

peared that the arrest of development was confined to the last lumbar vertebræ, the child being otherwise healthy and well-formed. Having the cautery in readiness in case of severe bleeding from the vascular coverings, and being prepared to prevent the sudden escape of the spinal fluid, an elliptical incision was made round the base of the tumor, when a quantity of reddish serum escaped, and the excision of the sac was readily effected. The finger passed readily into the spinal canal. The edges of the wound were brought together, and four needles being passed, the twisted suture was applied, as in the case of hare-lip. The threads were twisted so as to exert as much traction as possible on the contiguous parts, and small compresses were placed at the extremities of the needles to protect the skin. The child cried sharply at the commencement of the operation, but as soon as the fluid escaped from the spinal canal, it fell, for a few minutes, into a state of stupor. It cried again as the needles were applied, and by the time the dressing was finished, it took the breast as if nothing had occurred. The needles and sutures were removed on the fourth day, when the edges of the wound were found to be united. Adhesive plaster was applied, and in fifteen days a strong cicatrix, forming a sort of solid button, filling up the opening in the vertebræ, was all that remained of this reputed incurable disease. The examination of the removed tumor demonstrated that it was a cyst, distended by fluid, communicating with the spinal marrow, bounded behind by the common integument, and an expansion of the arachnoid and dura mater. The cavity was not in proportion to the volume of the tumor, for there were several layers of cellular and adipose tissue between its external and internal surfaces."

EXOSTOSIS.

This disease sometimes attacks the cervical vertebræ, presenting the appearance of a large bony tumor, covering two or three vertebræ, and extending laterally to nearly equal width. The two cases I have seen, one of which was two years under my care, occupied the two lower cervical vertebræ. They both proved fatal by paralyzing the arms and legs, and finally the trunk. Mr. Abernethy describes cases of exostosis of the ligamentum nuchæ. Mr. Cooper had one case which pressed against the arteria innominata, and stopped the pulse. I know of no certain remedy. Mr. Abernethy advised the free use of mineral acids, but, as he confesses, to no purpose.

DISEASES OF THE SPINAL CORD.

The anatomy of the spinal cord was purposely omitted at the commencement of this essay, in order that it might be given in connection with its diseases.

The spinal *column* contains the spinal *cord*, with the roots of the spinal nerves; and the membranes of the cord, viz., the *dura mater*, *arachnoid*, *pia mater*, and *membrana dentata*.

The *dura mater*, sometimes called *theca vertebralis*, is continuous with the dura mater of the skull. It is connected to the vertebræ by loose cellular tissue, containing an oily fluid. On either side it forms a sheath for each of the spinal nerves, and adheres to them firmly. Its inner surface is smooth, being lined by the arachnoid; and on either side may be seen the double opening for the two roots of the spinal nerve.

The *arachnoid* is also continued from the brain, and encloses the cord very loosely, accompanies the spinal nerves to their exit, and is then reflected over the inner surface of the dura mater, forming its serous surface. It is slightly connected to the cord and to the dura mater by filaments. The arachnoid incloses a serous fluid, sufficient in quantity to fill the intervening space between the dura mater and the cord, and to exert a gentle pressure on both. When, however, the dura mater is deprived of a bony structure to support it, it suffers dilatation, and the fluid accumulates in the part, constituting *spina bifida*.

The *pia mater* is the immediate investment of the cord, descending likewise from the brain, but, compared with the cerebral covering, is less vascular and more dense. It invests the cord closely, forms a delicate sheath for each filament of nerve, and sends a duplicature into the anterior and posterior medial sulci or fissures of the column. It also sends off a membrane from each side of the cord throughout its length, called the *dentata*, which separates the anterior from the posterior roots of the spinal nerves. These duplicatures of the membrane posteriorly and anteriorly and on each side, hold the cord suspended, as it were, in its surrounding serous fluid, and divide it superficially into four quite distinct columns, two on each side, and each of the lateral columns is divided into two others, faintly marked, however, and all of them observed only near the top of the cord.

By this subdivision we have four divisions to each side of the column, viz., anterior, lateral, posterior, and median posterior, which are very small.

The two *anterior* are the motor columns, and give origin to the motor roots of the spinal nerves; near the brain they are called *corpora pyramidalia.*

The *lateral* columns are divided in their functions between motion and sensation, and contain what Sir Charles Bell calls the respiratory tract.

The *posterior* columns give rise to the spinal nerves of sensation, and near the brain terminate in the *corpora olivaria*, or *restiformia.*

The *median posterior* columns, consisting of a slight line merely, one on each side of the posterior median line, have no function at present assigned to them.

Such are the structure and functions of the spinal cord, as understood and believed by leading physiologists of the present day. But another class of nervous powers, connected with the spinal marrow, is superadded to the above, which appears to be well established by experiment, and is consequently admitted by most physiologists to exist, I mean the excito-motory power of Marshall Hall. A leading feature of this doctrine is, that the spinal marrow, or some part of it, is acted on by sensitive nerves, and reflects the excitement thus produced in it upon certain muscles through motory nerves extended to them, and that all this takes place independently of the brain.

Legallois, as long ago as 1812, made an important step in the investigation, by showing experimentally the connection of the sympathetic and excited actions with the spinal cord alone, and that any single division of the spinal cord would act as the centre to the portions of the body connected with it by nervous trunks—not however like the brain, with the property of consciousness either in its reception or transmission of impressions, but by a sort of automatic impulse. The automatic animal motions resulting from this property, Dr. M. Hall has grouped together, and traced out their morbid phenomena. He divides the class of nervous diseases of his excito-motory system into three subdivisions, according as they affect the incident nerves, or those on which the morbid cause acts, leading to the spinal cord, the spinal marrow itself, or the reflex or motor nerves. To follow more exactly his classification of diseases of the spinal marrow and nerves, they are,

I. Centric diseases, or diseases of the true spinal marrow itself.

II. Eccentric diseases, or diseases attacking the incident or excitor nerves.

III. The diseases of the reflex, or motor nerves.

I. Inflammation within the spine.
1. Inflammation of the membranes, or spinal meningitis.
2. Inflammation of the substance, or spinal myelitis.
Of the cerebral, sentient, or motor tracts.
Of the true medulla.
Of its principal divisions.
Congestions, Hæmorrhagia.
Centric Convulsions, or Epilepsy.
Paralysis Agitans, General,
or Hemiplegic.
Tremor Mercurialis.

II. Eccentric Diseases.
Eccentric Epilepsy.
Puerperal Convulsion.
Tetanus.
Hydrophobia.
Hysteria; Chorea; Stammering.
Spasmodic Asthma.
Vomiting.
Tenesmus; Strangury.
Abortion.

III. Diseases of the Spinal Motor Nerves.
Spasmodic Strabismus.
Spasmodic Tic.
Spasmodic Torticollis.
Spasms of the Respiratory Nerves.

The foregoing diseases of the nervous system are more or less connected with a disordered state of the functions of the spinal cord or its investments, and are here introduced merely to show their nature and variety. A full account of each would far exceed the limits of a single treatise like the present. Very few if any of them exhibit any lesion appreciable on dissection, if we except inflammation of the spinal marrow and its membranes, which will now be briefly considered.

It may be divided into inflammation of the membranes, or spinal meningitis; and inflammation of the substance, or spinal myelitis.

Sir Charles Bell thinks the membranes of the spinal marrow are the most susceptible of inflammation and suppuration of any in the body. Rheumatism, and exposure to cold, and blows or falls, and caries of the vertebræ, are reckoned among its causes. *(Louis.)*

One of these inflammations, whether meningitis or myelitis, seldom exists to any considerable degree without inducing the other; and consequently they are not easily distinguished. The location of the inflammation, whether it affects the medulla oblongata, the cervical, the dorsal, the lumbar or sacral portion of the spinal marrow, is, however, interesting, as a guide in the diagnosis and local treatment.

As a general remark, it may be said, that "the symptoms of meningitis are more those of irritation of the spinal marrow, or spasm; those of myelitis, more of destruction of the organ, or paralysis." Both kinds, however, may exist together, or in alternation, and it is fortunate that the treatment, both general and local, is nearly the same in both.

In meningitis the prominent symptoms are pain in the part affected, augmented by movement, tenderness and pain in the side and along the limbs, spasm in the form of various kinds of muscular contraction in the trunk and limbs, constant or recurrent, aggravated by motion, sometimes convulsions. There is sometimes difficult respiration, retention of urine, and constipation.

In myelitis, there is paralysis of voluntary motion and sensation, impaired sensibility and numbness, and impaired muscular power. These are first observed combined, or singly, in one or both of the lower or upper extremities. In some cases, complicated with meningitis, there may be increased sensibility; and in others there are spasmodic affections or convulsions. *(Hall.)* Commonly the paralysis increases and extends upward. Occasionally we find paralysis of motion alone. But the symptoms vary as to the parts of the system paralyzed or embarrassed, according to the location and extent of the disease, and consequently affect the functions of the bladder and bowels at one time, and at others the respiration.

The post-mortem appearances are, in meningitis, injection, effusion of serum, or of lymph, or of pus, and ulceration; in myelitis, injection, tumefaction, softening, purulent infiltration, abscess, induration; the last is frequent in chronic myelitis. Softening is the most common morbid change of structure.

The following list of cases is the largest I have seen, and exhibits an outline of the symptoms. It was made out by M. Prus, physician to the Sal-petrière.

"Case I. Contraction of the extensors and flexors of both inferior extremities; preservation, but alteration of the sensibility of

these parts. Progressive paralysis of the sphincters of the bladder and rectum. Death. Gelatiniform softening of the two inferior thirds of the spinal marrow.

Case II. Sudden loss of speech; deviation of the mouth to the right; progressive diminution in the voluntary power of the left arm; incomplete paralysis of motion in the left side of the face, without any alteration of sensibility; involuntary discharge of saliva; dyspnœa carried to commencing asphyxia; death; superficial softening of the whole circumference of the medulla oblongata.

Case III. Pricking and loss of sensibility of all the limbs, especially of the inferior; incontinence of urine; sloughs on the sacrum; death; slight softening of the posterior columns of the spinal marrow, in the portion constituting the lumbar swelling.

Case IV. Loss of motion in the inferior extremities; sensation preserved; acute pains continuing during many years in the lateral parts of the chest; purulent expectoration; hectic fever; softening of one portion of the spinal marrow; spinal meningitis; caries of the seventh, eighth, and ninth dorsal vertebræ; abscess communicating with the bronchiæ by means of numerous fistulæ; compression of the spinal nerves in their passage through the foramina of the carious vertebræ.

Case V. Progressive paralysis of motion only, in all the limbs; paralysis of the sphincters of the rectum and bladder; spasmodic respiration; sudden death in going to stool; double softening of the spinal marrow, that is, in the cervical and lumbar portions; the gray matter of the cord invisible in the diseased parts; nearly so in others.

Case VI. Paralysis of motion only in the four limbs, which are slightly contracted; progressive paralysis of the sphincters of the rectum and bladder; reddish softening in the middle lobe of right hemisphere of cerebrum, and in anterior lobe of left hemisphere; spinal marrow perfectly healthy.

Case VII. Paraplegia during three years; exostosis of left clavicle; treatment by mercury and sodorifics; successive disappearance of exostosis and of paraplegia."

The treatment, as before observed, is nearly the same in meningitis and myelitis, and consists chiefly in local bleeding by cupping and leeching, particularly the former, in acute cases, and in issues and setons in chronic; in the use of mercury, rest in a recumbent posture, gentle laxatives, and abstemious living.

SPINAL IRRITATION.

The medical reader must ere this time know what is understood by the term "spinal irritation," or, as some call it, "functional disease of the spinal marrow." Although he searches in vain for it in systems of nosology, every periodical presents reports of cases agreeing so nearly in the range of symptoms, and in the mode of treatment found most successful, as to establish the identity of their nature, and, however obscure may be their pathology under the dissecting-knife, to render it at least convenient to give them a local habitation and a name, by which they may be readily recognized and properly treated.

The first writer, so far as I know, who called the attention of the profession to the connection between certain neuralgic symptoms in different parts of the body and spinal tenderness, was Dr. Player, who in 1821 published a short essay describing this connection as often exhibited in his practice, and also the success attending the application of local remedies to the spine in curing affections, however distant their manifestation, to which the nerves arising from the diseased part are distributed.

It is worthy of remark that the simple facts, though known and acknowledged by most of the profession, and republished with innumerable cases in illustration of them, received very little accessions calculated to make these diseases dependent on the spine any better understood. Post-mortem examinations are rare, and have shed scarce a ray of light on their nature or pathology; and the only additional information on the subject consists in enlarging the range of morbid manifestations in remote organs. It must however be admitted that the doctrine of an excito-motory system, of Marshall Hall, affords the best clue towards unravelling the intricacies of the subject. By this we learn that irritations of the spinal marrow may be idiopathic, or may arise from "some previous derangement in the functions of some organ or organs," transmitted through the incident, or excitor nerves, as from the teeth, the stomach, and bowels, or the uterus, to the spinal marrow, and after a time be transmitted thence by the reflex nerves to other organs and tissues, inducing various neuralgic and spasmodic complaints, so often referred to spinal irritation. It may be said that this idea was admitted before Hall's theory was published. And so it was; but the reason why teething in children, gastric irritations, and other impressions acting on the spinal cord and through it, are reflected on the muscular and nerv-

ous system in the form of spasms and convulsions, without affecting in any way the cerebral centre with a sense of pain, is puzzling on any other system than that of Marshall Hall, which teaches that the excito-motory system is independent of the brain.

It would require more space than this essay can afford, to give a detailed account of the symptoms that proceed from spinal irritation. I must therefore present a tabular view of the largest number of cases that to my knowledge have come under the observation of any one individual, and which my own observation of cases teaches me exhibits a correct analysis. I have added a few symptoms, which have occasionally occurred in cases under my own care, which are italicised. The original table is by William Griffin, M.D., of Limerick, Eng.

A. Twenty-eight cases of *cervical* tenderness; 8 men, 8 married women, 12 unmarried. Prominent symptoms: headache, nausea or vomiting, face-ache, fits of insensibility, cough, dyspnœa, affections of the upper extremities. In 2 cases only, pain of stomach. In 5, nausea or vomiting—*asthma, pain under clavicle and under scapula.*

B. Forty-six cases of *cervical and dorsal* tenderness; 7 men, 15 married, 24 unmarried women.

Prominent symptoms. In addition to the foregoing, pain of stomach and sides, pyrosis, palpitation. In 34 cases, pain of stomach; in 10, nausea or vomiting. *Hæmoptysis, 3 cases.*

C. Twenty-three cases of *dorsal* tenderness; 4 men, 6 married women, 13 unmarried. Pain in stomach or side, particularly at the ensiform cartilage, cough, oppression, fits of syncope, hiccup, eructations. In one case only, nausea or vomiting; in almost all, pain of stomach.

D. Fifteen cases of *dorsal and lumbar*; 1 man, 11 married women, 3 unmarried. Pains in abdomen, hips, loins, lower extremities, dysury, ischury, and the symptoms of dorsal tenderness. In one case only, nausea.

E. Thirteen cases of *lumbar.* Pains in lower part of abdomen, dysury, ischury, pains in testes or lower extremities, or disposition to paralysis. In one case, spasms of stomach and retching. *Tenesmus 2 cases, and acute pain in the labia pudendi in 2 cases.*

F. Twenty-three cases, all spine tender; 4 men; 4 married women, 15 unmarried. All the above symptoms combined, excepting those I have added.

G. Five cases, no spinal tenderness; symptoms like the foregoing.

In all local pains about the trunk and limbs that wear the aspect of neuralgia or convulsions, for which no adequate cause is assigned, I am in the habit of trying the tenderness of the spine, and in a large majority of cases find it distinctly marked. In respect to those where this symptom is wanting, but which in every respect resemble the others, are we to consider the spine as implicated, and treat it accordingly? This question most therapeutists would answer in the affirmative. The centric irritation, as Mr. Hall would call it, may be in the roots of the nerve within the spinal canal, where being enclosed in a bony covering, the usual tenderness might not extend to the integuments, so as to feel the painful pressure of the fingers, and may yet have the same character, and be as susceptible of relief from local depletion and revulsion, as if the irritation existed in the nerves after their exit from the osseous canal. Marshall Hall states that even inflammation of the cord and its membranes may exist unaccompanied by tenderness of the spine on pressure.

Among the most remarkable neuralgic diseases connected with spinal irritations, I have found to be those which result from repelled irritations on the surface; and as these have in a great degree escaped the notice of the authors I have read, I will subjoin a few cases.

Miss H. had long had a pimpled face—acne—to remove which she used a cosmetic containing a preparation of the oxyde of lead. Soon after its disappearance she complained of a numbness of one hand, followed by clonic spasms or twitchings, which soon increased and involved all the limbs. These increased in violence, and gradually involved the whole system in general convulsions, and caused her death. Early in the disease there was tenderness on pressure of the nape of the neck. Counter-irritants were applied over the part, and produced temporary abatement of the spasms, but they soon returned and proved fatal.

A case of itch was suddenly cured, and was followed by chorea. In this case there was tenderness of the spine. The symptoms yielded to counter-irritation and mineral tonics. Cases exactly similar have been cured by restoring the itch. These occurred before attention was directed to the spine, but from the correspondence of symptoms and course of the muscular contractions, there is no doubt spinal irritation existed. From these cases it would seem that the

sudden suspension of an accustomed stimulus in the skin, has equal effect in disturbing the action of the spinal nerves, as the positive irritation of teething, or of the gastric organs.

Many times I have known tenderness of the spine and various neuralgic affections to alternate with cutaneous diseases; probably by metastasis, as the nervous affections yielded to permanent irritations on the skin. The sudden drying up of humid tetters on the skin in young children, I have known to produce spasmodic twitching of the arm. So intimate indeed is the sympathy between the skin and the spinal marrow, that Guérin, in his Etiology of Lateral Curvature, refers to it as a proof that disorder at the root of the spinal nerves, caused by repelled cutaneous disease, influences the spinal muscles of one side more than those of the other, either in the form of tonic spasm or palsy, so as to produce lateral curvature. I may further add, that in conversation with Dr. Abbie, of the orthopedic institution, he spoke of transferred irritations from the surface as among the most frequent causes of spinal irritation.

The tabular view I have given places thoracic diseases among the most prominent. I have had two cases of consumption in one family, besides others elsewhere, that are worthy of particular notice. In the first case, the complaint of ill health began in an excited state of the voluntary muscles, extreme uneasiness, changing posture in the chair, jerking of the arms, some wandering pains in the trunk and limbs that were hardly definable. To these succeeded involuntary twitchings of the arms, resembling chorea, rendering the patient unable to write, and even to feed himself. Suspecting spinal irritation, I found on examination the lower cervical and first dorsal vertebræ extremely tender. I now applied cups daily over the part, took him with me on a journey to the Springs and to the sea-shore, and his symptoms all subsided, and emaciation was succeeded by full health. It lasted, however, but a few months, when pain commenced in the side, cough, loss of strength and flesh. He took a journey south in March, where exposure to bad weather aggravated his symptoms, and he died the following summer of tuberculous consumption. The evidence furnished by this case goes to show that tubercles may exist, and become a source of nervous irritation, by creating tenderness of the spine, from which the same irritation may be extensively radiated throughout the system, without any decided local manifestation of disease in the part primarily affected. The lungs transferred their irritation to the spinal marrow and made it the focus of disease,

and from this it was radiated throughout the muscular system by the reflex motory nerves described by Marshall Hall. Here then we have a case illustrating his views of the location of disease in the incident, the centre, and the reflex order of nerves; but finally proving fatal in the organ primarily affected.

The sister of this patient was attacked, while in the enjoyment of perfect health, with hæmoptysis, which recurred frequently, and was succeeded by slight cough and some wandering pains about the chest. There was also a general irritability and restlessness, with some tenderness of the spine. Travelling in the south, and passing a winter in a warm climate, with exercise and extreme care, kept the progress of the phthisis in check for more than a year, and was tried a second winter, but the disease of the lungs is actively progressing, and from present appearances she will not reach a third winter. From this case I infer that the hæmoptysis lessened the amount of irritation in the excitor nerves, and consequently in the spinal centre, and hence the reflex morbid affections were far less than in her brother, yet the lung affection progressing steadily will prove fatal at last.

The cases are interesting, as showing the importance, in chronic visceral disease, of having an eye to the spine. We may not be able to do much towards curing the primary disease, if it be tubercular phthisis, but the morbid influences which it sends to the spine may there be so far mitigated as to remove all reflex disease flowing from it.

I need not advert to the morbid influences shed over the system by hypochondriasis and hysteritis, originating in the liver and uterus, and propagated to the spine. Dr. Tate, of London, after extensive experience, added to profound attainments, "has not hesitated to publish the opinion that the appalling and anomalous symptoms presented in the hysterical female are all capable of being referred to an irritation existing in some portion of the spinal marrow, originally induced by a disordered state of the uterine function. He was led to this conclusion by observing that tenderness on pressure over the spinal column was a uniform attendant and characteristic of these complaints, connected almost uniformly with pain under the left breast, and palpitation of the heart. These four symptoms, viz., disordered menstruation; spinal tenderness, most generally evident over the upper dorsal vertebræ; pain under the left mamma, and sometimes under the right; and palpitation of the heart, may be dis-

tinguished among a multitude of frightful appearances, in almost all cases of chronic nervous disorder in young females, and when they are conspicuous Dr. Tate considers them as constituting a peculiar and distinct disease, which, to avoid confusion, he proceeds to call hysteria.

Treatment.—In examining any case that presents itself, which exhibits the symptoms detailed in the tabular view, if we can detect any tenderness of the spinal column with general nervousness, we are to direct our attention first to the removal of the spinal tenderness, and secondly to the organ primarily affected, whether the skin, the thoracic, the abdominal, or pelvic viscera.

Of all the remedies I have tried under the first indication, cupping has been most beneficial. Leeches are nearly as valuable, but, besides the trouble of making them draw, which to a nervous patient is very annoying, they act only by depletion, while cups draw the blood from the deep-seated parts toward the surface, and may be used for this purpose alone, as well as for the extraction of blood. Nearly all writers recommend local depletion, except Dr. Tate, who prefers strong counter-irritation. The cupping should be practised daily at first, with the scarificator chiefly, but as the disease begins to yield, dry cupping should be gradually substituted. I usually begin with applying three or four cups with the scarificator, on both sides of the spine, and as many dry cups. I have sometimes found two portions of the spine affected with tenderness, and in such cases have noticed a corresponding range of the reflex disorders in different parts of the trunk. In these the remedy was applied to both portions of the spine with corresponding relief.

The next remedy is counter-irritation, which should be proportioned in its strength and permanence to the duration of the disease. In moderate cases, camphorated volatile liniment, with or without the addition of spirits of turpentine, may be applied immediately after the cupping, or in slight cases of tenderness this liniment without cupping may answer, but in all severe cases of tenderness, and consequent diseases elsewhere, local bleeding should precede the stimulating applications. I have known all the symptoms aggravated by a blister or other irritant over the tender portion of the spine, where bleeding has not preceded.

The next most important remedy is travelling and change of residence. Mr. Rogers speaks of it in such strong terms of approbation, that the reviewer of his book regards its efficacy as proof that

no disease of the spine exists. (British and Foreign Med. Review, 1836.) I have always noticed marked good effect from it.

Carbonate of iron, given as freely as the patient can bear, I have always found serviceable, after cupping or leeching. The acetate of iron, Griffith's myrrh mixture, and various other forms of chalybeates, are worthy of trial. The vegetable tonics have not in my practice proved beneficial.

Reviews.

I.—*Traité Pratique de la Pneumonie aux differens ages et dans ses rapports avec les autres Maladies Aigues et Chroniques.* Par A. Grisolle, D.M.P. Medecin du Bureau Central des Hopitaux et Hospices Civils de Paris; Membre Titulaire de la Societé Médicale d'Observation, etc. etc. Paris: 1841. Octavo. Pp. 747.

Practical Treatise on Pneumonia as occurring at different ages, and in its relations to other Acute and Chronic Diseases. By A. Grisolle, D.M.P., &c. &c.

Of all the diseases to which the human frame is subject, there is perhaps no one which is observed by the physician with more interest, or in the treatment of which he has more satisfaction, than pneumonia. Since the discovery of auscultation and percussion, inflammation of the lungs is, to a certain degree, as well the subject of recognition by our senses, as inflammation of the skin. We can limit the disease and trace it in its stages, we can ascertain the time when resolution commences, we can follow this process as it extends successively through the different diseased portions of the lungs. In this way we can watch the effect of therapeutical agents, and as precision and exactness in our knowledge are the results of this facility, we apply remedies with great confidence.

That pneumonia, then, should have been a favorite subject with writers, is easily understood. From the severity and frequency of the disease, it was so even before the discovery of Laennec. Since then, the number of treatises and memoirs of which this disease has been the subject, is very great, and many points in its history have been fully discussed. Still, however, a proper monograph was wanting. This want is supplied in the volume before us. M. Grisolle is of the school of observation. Fully aware of the difficulty and importance of careful observation, and of full and accurate records of its results, he studied the disease in an especial manner for six years, and in that time collected 373 cases, all observed and recorded by himself. A careful and exact analysis of the cases constitutes the original part of

his work. At the same time he has sought for all that is important and valuable in the labors of those who have preceded him. He has not observed extensively the disease in the very young, nor in the very old. But Valleix, Rilliet and Barthez, Rufz and Gerhard, have communicated the results of an extensive observation of the pneumonia of children. A memoir on the pneumonia of the aged was published in the "Archives Générales de Médecine," by Hourmann and Dechambre. Louis, Andral, Chomel and Bouillaud have made public the results of their observation of the disease in adults. M. Grisolle has appropriated much from all these sources. He has studied the work of Dr. Stokes, he has sought for information from the statistical reports of the diseases of the British army. He has gone back to earlier writers, and by the aid of careful examination and sound criticism, he has thus endeavored to collect in one volume all that is known of pneumonia.

As the perusal of mere numbers is tedious, our author has endeavored as much as possible to conceal them, and to communicate his results in as interesting a form as possible. He certainly has succeeded in this attempt. We regret, however, that he did not subjoin in an appendix the numerical tables from which his book was prepared. They would have been useful to the writer desirous of publishing his own results, and comparing them with those of his predecessors, and to the mere student who often wishes facts presented in the most convenient form for reference.

Of course we cannot pretend to give a thorough analysis of a book prepared in this way, nor to discuss all the important points as presented by the author. Seven hundred and forty closely printed pages are not thus to be condensed. The book is the standard work on the disease, the history of which it professes to give. It should be in the library of every scientific physician. We hope, for the benefit of medical science in our country, that it may be translated and published here.

At this time we can only profess to put before our readers so much as shall enable them to judge whether our commendation has been properly bestowed.

M. Grisolle's first chapter is devoted to the anatomy of the disease. He admits the three stages as commonly described. He has never observed the appearances which have been given by Dr. Stokes, as an earlier stage than congestion. Nor has he found in any case where the disease was not consecutive, congestion without hepati-

zation. He gives the following table to show how far the different stages have been found by him to be united in the same case.

1st and 2d degrees in	4
1st and 3d degrees in	3
2d and 3d degrees in	16
The three degrees in	2
The 2d degree in	1
The 3d degree in	3

In four cases he has seen an entire lung invaded by the disease. He has also noticed an œdematous condition around the diseased parts. Lobular pneumonia, so frequent in children, is occasionally found in the adult, and sometimes even in the aged. Our author has never seen the disease described by Andral as vesicular pneumonia, and by Rilliet and Barthez as vesicular bronchitis. That the right lung is more frequently the seat of the disease than the left, is an established fact. In the cases observed by M. Grisolle, the proportion in which the right and the left lungs were affected, was as 11 to 6. Adding to his own cases those observed by Chomel, Andral, Bouillaud, Barth, Forbes, Lombard, &c., he has 1430 cases, amongst which the right lung was diseased 742 times, the left 426, and in 262 patients the pneumonia was double. In 128 autopsies of new born children, made by Valleix and Vernois, hepatization of the right lung was found in every case, whilst in 17 cases the left lung was free from disease. Hourmann and Dechambre found 84 right pneumonias to 27 left in the very aged. M. Grisolle's results as to the infrequency of double pneumonia, it having occurred only once in 16 cases of the disease, do not correspond with those of other writers. Barth, however, relates, that of 125 cases observed by him, in the wards of Chomel, the disease existed in both lungs in 8 only, and Louis has also recorded his experience to the same effect. There has been also some discrepancy in the results of those who have compared the frequency of the disease in the upper and lower lobes, agreeing for the most part that the disease more generally attacks the lower lobe. Andral gives the relative frequency as 3 to 2; Briquet as 2 to 1, and Bouillaud as $1\frac{1}{2}$ to 1. From an examination of 264 cases, M. Grisolle finds that 4 to 3 are the proportions, but these vary in different years. Dr. Stokes has remarked the same variation. As to the question which part of the lung is principally affected in pneumonia, whether it be the vesicular or the intervesicular structure, M. Grisolle does not find sufficient data to enable him to de-

cide. From the existence of the crepitant rale, he infers that the vesicles must be diseased, and the granulated appearance he would attribute to the same cause. Abscesses of the lungs, as a sequel of pneumonia, are regarded by French pathologists as very infrequent. Laennec had only seen 5 or 6, Chomel only 2, Andral and Louis each 1, and M. Grisolle also has seen only 1. He has, however, collected 22 cases from different authors. Six of these patients were more than 70 years of age—1 only was a child of 4 years. The abscesses were found as often in the left as in the right lung, 9 times in the upper and 5 times in the lower lobe. Our author considers consecutive and metastatic abscesses in different sections. He has never found gangrene in the lungs of those whose disease has been a primitive pneumonia. In an individual who died the tenth day, he found the greater part of the lung in a state of red and grey hepatization; but in the centre of the lower lobe was a spot which by its mahogany blackish color, contrasted strongly with the greyish tints of the surrounding parts. The lung in this point was converted into an inorganic pulp, from which, however, there was not any remarkable odor. This lesion is regarded by M. G. as a species of mortification of the pulmonary tissue, which he compares to softening of the central nervous organs. In 18 cases M. Grisolle examined carefully the condition of the bronchi, without finding dilatation in any, although this state was so frequently found by Rilliet and Barthez in their autopsies of children. The mucous membrane of the bronchi was of a dark-red color in 12 instances, but was not swollen nor thickened in any case. M. G. has not seen himself false membranes in the bronchi, but he alludes to 10 cases observed by Nonat in the epidemic of 1837, in all of which these membranes are found in the bronchi of the hepatized portions. In 7 of 9 cases the bronchial glands were swollen and softened, and in one case pus was found in one of them. Clots were found in the heart and large vessels in 24 of 25 cases, and in this respect pneumonia is remarkable as compared with other acute diseases. In a fifth of the cases, the clots were colorless, thick, elastic, adherent to the walls and wound around the columnæ carnæ. As Postu had declared that all fibrinous concretions of the blood could be formed artificially after death, M. Grisolle repeated six times his experiment. He sought the blood from the veins of rheumatic or pneumonic patients in human hearts which had been emptied and washed, and then protected them from the air and kept them without motion for 24 hours. On examining them, he found

soft black clots, but never any of the tough yellow concretions. M. Grisolle has found these only in patients who have died of an inflammatory disease. In 24 patients in whom the condition of the gastric mucous membrane was ascertained with care, it was found to be softened in a greater or less extent, six times. All these patients had taken tartar emetic. M. G. is not, however, disposed to consider the lesion as an effect of the medicine. In 8 of 24 patients, the same softening was found by Chomel and Genest, and only three of these had taken this drug. Of 16 of the subjects in whom the mucous membrane appeared to be healthy, 8 had taken the medicine in the same doses. The subject of chronic pneumonia, about which so much has been said by different authors, receives a large share of attention from M. G. The lung in this state is hard, and of a grey, red or black color. It has been seen by him only three times. M. Chomel, in 16 years, has met with it only twice. Tuberculous chronic pneumonia, however, or an induration of the lungs, round tubercles or cavities, are a frequent affection. Of 75 subjects who were attacked by pneumonia in the course of acute or chronic diseases, the pulmonary inflammation was found, after their death, to be still in their first stage in 30. In only 12 of these cases was there any purulent infiltration. Five of the 22 individuals in whose lungs abscesses were found, had been ill for some time when the pneumonia supervened. We notice at once how different are these results from those obtained by an examination of cases of primitive pneumonia. M. G. finds that an analysis of his own cases does not confirm the opinion that there is any thing peculiar in the anatomical appearances of pneumonia of typhoid fever. Splenification, carnification and lobular hepatization, are however more often met with in the disease when consecutive, than when primitive.

Etiology.—Pneumonia is a disease of all ages. It is not unfrequently the cause of the death of the fœtus and of the new-born child. Primitive pneumonia is a rare disease in children—secondary pneumonia is frequently met with in them. Thus M. Vernois found inflammation of the lungs 113 times at the autopsies of 114 new-born children, and M. Rufz says that he has seldom examined the body of a child dying at between two and five years of age, without finding pneumonia. To ascertain at what age of adult life the disease is most frequently met with, M. G. gives a tabular view of his own cases, arranged according to ages. He then adds to his own cases, those of Leroux, Chomel, Bouillaud, Briquet, and thus has 630 pa-

tients. As the results of the two tables correspond, we subjoin only the second.

From 14 to 20 years	84
" 20 to 30 "	190
" 30 to 40 "	117
" 40 to 50 "	107
" 50 to 60 "	84
" 60 to 70 "	37
Above 70	11

But we must not draw direct conclusions from the above tabular view, as to the frequency of the disease at different ages, without making allowance for the difference of the number of persons at the different ages, who enter the Paris hospitals. When this has been done, the period between 20 and 30 years is still that in which the disease is most frequently met with. The disease is as often seen in individuals between puberty and 20 years, as in those between 40 and 50. Diminishing in frequency in the following ten years, it becomes more frequent in those over 60, and it is the most frequent as well as the most fatal acute disease of old age. That men are more subject to pneumonia than women, has been remarked since the time of Cœlius Aurelianus. Of M. G.'s patients, 236 belonged to the male, and only 68 to the female sex. This difference, however, is not to be explained by the mere difference of sex, but rather by the difference of occupation. At Buhl, a mountainous, vine-growing district, where the two sexes were employed out of doors, of 94 pneumonias, 50 were in women, and only 44 in men. In children, according to the numbers given by Valleix, Vernois, Hocke and Rilliet and Barthez, the disease occurs with the same frequency in the two sexes. M. Grisolle does not find, on examining his own cases and those of others, that the humpbacked are particularly subject to primitive pneumonia. But the disease is often developed in them when laboring under other diseases. Thus, at the autopsies of 24 of these individuals, in 16 there were traces of pneumonia. M. Grisolle has investigated, with a great deal of care, the question how far the first attack of the disease acts as a predisposing cause to produce a second. Of 175 patients, 54 had already gone through with the disease. The previous attacks varied in number from 1 to 8, and it would seem, from M. G.'s facts, that the oftener the individual had already been affected, the more liable was he to a new affection. At the same time, the lung previously diseased seemed more frequently the one to suffer at

the second attack. Of 35 patients who had had two attacks, in 25 the same lung was affected both times. Does menstruation predispose to the disease? M. Grisolle has examined carefully in 11 cases as to this point. In 6 of them the disease occurred at the menstrual period, and in 3 of them the function continued, notwithstanding the supervention of the disease. In 3 other cases the catamenia did not make their appearance. From this small number of cases, it might be inferred that a woman is more liable to contract the disease at this period, than at other times. M. Grisolle, from his own experience, would say, that those recently confined and those nursing, are not peculiarly liable to pneumonia. According to a table given by our author, in which the number of those taken sick in each month is put against the name of the month, the months of April, March, February, May, are those in which the disease is most rife; whilst in August and October it is most rarely observed. MM. Hourmann and Dechambre have found the disease most prevalent amongst the aged, in the month of March, and then in point of frequency were December, April and February. The months of April and March, again, are those in which the disease prevails chiefly amongst children. That pneumonia is not an infrequent disease in summer, has also been remarked by other observers. Of 54 cases of the disease, 29 commenced when the wind was from the north. At the same time it has been observed in Geneva, that the north wind prevailed during as many days in September as in May, the disease being most frequent in the last, and least so in the first month. It is known that M. Bouillaud has expressed and defended his conviction of the correctness of the commonly received opinion, that cold is almost always the cause of the disease. In 205 patients, M. Grisolle questioned with great care and minuteness as to the exposure of the patients, and 49 of them only had been so subjected to its influence that the disease could be attributed to it. Of 79 patients interrogated by M. Chomel, 14 only had been exposed to cold, and of 125 pneumonias observed by Barth, one third of them only could be attributed to the influence of this agent. In the Foundling Hospital, where all the children are in a room kept at the same uniform temperature, we cannot assign cold as a reason why some are attacked by the disease. When cold has been the cause, its effects for the most part have been immediate. Thus, in 34 cases, where the time which elapsed between the application of the cause and the development of the disease was noted with accuracy, in 18 the premoni-

tory symptoms followed immediately the exposure; in 11, one, two or three hours elapsed, and in 4 patients from one to two days intervened between the application of the cause and the development of the disease. Still, M. Grisolle is of the opinion, that when the intervening period is more than 24 hours, and when there are no especial circumstances in the case, we should consider the exposure to cold and the development of the disease simply as coincidences. And in all the cases where we admit cold to be the exciting cause, some predisposing cause must have acted at the same time. M. G. devotes a long article to a consideration of the influences under which secondary pneumonia is developed. It may be said generally, that fever and weakness are the two principal causes of the pneumonias which supervene in the course of other diseases. Of 197 children, laboring under gangrene of the mouth, croup, hooping-cough, measles, smallpox, enteritis, in 90 pneumonia appeared to be the principal cause of death. The anatomical appearances of this disease were found in seven-eighths of those dying with croup, in one-third of those dying with measles, enteritis and hooping-cough. Those who have observed children between the ages of 2 and 15, agree that when the subjects of epidemic measles they are very frequently affected with pneumonia, which, at the same time, is generally the cause of death. The same, however, is not true of adults, except in occasional epidemics. Thus, this complication has been observed by M. Grisolle in only one-twentieth of his cases. Smallpox at all ages is less frequently complicated by pneumonia than measles; but scarlet fever is, of all eruptive diseases, that in which the lungs are most rarely the subjects of inflammation. M. Grisolle has never met with a case in which this has taken place. M.M. Rilliet and Barthez have not observed any, and of 10 cases of scarlet fever reported by M. Becquerel, one only was complicated with pneumonia, The same fact has been noticed in several epidemics of scarlet fever; but of the anasarca succeeding to scarlet fever, pneumonia is a frequent complication. Glanders and phlebitis are the two acute diseases in which pneumonia most frequently supervenes. In puerperal fevers, accompanied with uterine phlebitis, the lungs are often inflamed, whilst of 52 cases of metritis, in which an autopsy was made by M. Grisolle, the lungs were free from inflammation in every case. In capillary phlebitis of the bones, coming on after amputations in the continuity of limbs, after wounds of the skull, hepatization of the lungs is frequently met with. In one-seventh of the cases of typhoid fever observed by M. Grisolle,

and in one-fifth of those under the observation of M. Louis, pneumonia supervened in the course of the disease, and this same disease is met with in about the same proportion in patients suffering under the febrile diseases of the brain and its membrane. After phthisis, organic diseases of the heart are the chronic diseases in the course of which pneumonia is the most frequently a complication. Of 65 such patients, in 18 the lungs were inflamed, and Clendenning found pulmonary inflammation in 36 of 145 autopsies of individuals dying with chronic disease of the heart. The anatomical characters of pneumonia are found in one-sixth or one-seventh of those dying with cancer, chronic disease of the liver, albuminous nephritis. Pneumonia is also a very frequent disease in the insane. Of 168 autopsies made at Charenton, in one-ninth of them the lungs were inflamed. Of 52 patients dying at Bicetre of an incidental disease, that disease was pneumonia in 11. In some of these cases which have just been passed in review, the developments of the secondary pneumonia may be explained by the direct influence of the primitive disease. Thus croup, hooping-cough, capillary bronchitis, pulmonary apoplexy (in which, however, secondary pneumonia is rarely met with), may be supposed to act in this way. Tubercles do not appear to act by the mere mechanical pressure. Of the two causes of secondary pneumonia, fever and weakness, M. Grisolle thinks the latter to be more efficacious. In erysipelas and in articular rheumatism, pneumonia rarely supervenes, whilst it is very frequent in organic affections of the liver, in paralysis and other diseases where the prostration is great and there is but little fever. The opinion of the ancients, that the disappearance of rheumatism and gout from the limbs frequently concorded with a severe attack of pneumonia, has not been sustained by later observation. Andral, however, reports such a case; a similar one has since been observed at the hospital of La Charité in Paris, and M. Grisolle gives one of articular rheumatism with lumbago, where a pleuro-pneumonia supervened, the lumbago disappearing, and the pains in the joints being severer at the same time. According to a table given by M. Grisolle, secondary pneumonia is much more frequent in the aged than in the young. Congestion of the lung taking place in cases where the patient has been lying for a long time on the back or on the side, appears from a careful examination of facts, to be frequently a determinating cause of pneumonia. This disease, too, is frequently preceded by pulmonary catarrh. According to M. Grisolle's statistics, pneumonia supervenes in one quarter of those suf-

fering from acute bronchitis. In four-fifths of these patients, there was no appreciable occasional cause. These cases should serve as a warning that an acute pulmonary catarrh is not to be neglected, as its symptoms may be precursory of so severe a disease as pneumonia.

The fourth chapter of M. Grisolle's book is occupied with a consideration of the manner in which the disease first shows itself. A chill occurred in the first 12 hours of the disease in 145 of 182 patients; and in 110 it was the very first symptom. With the exception of intermittent fever and puerperal peritonitis, there is no acute disease, the commencement of which is so frequently marked by a chill. In the greater number of cases, the first symptoms of the disease are local from the chest. But in 7 patients, during one, two, three or five days, fever, prostration, loss of appetite, were the symptoms. One patient, during the first days, complained only of a violent lumbago, 2 were troubled with obstinate vomiting, and 3 complained of a violent headache. An old man, perfectly well on going to bed, woke up in the night, feverish, restless and delirious. Thus it will be seen that the first symptoms of pneumonia are by no means always so characteristic as to render the diagnosis sure and easy. And in consecutive pneumonias, to make the diagnosis in the commencement of the disease, is often still more difficult. In the 38 cases observed by M. Grisolle, the chill took place in only 9, and the pain of the side in only 6. The dyspnœa, which would attract attention in many cases, in some cases of thoracic disease might pass as a phenomenon of the original affection. In the old and the insane, extreme prostration and dyspnœa coming on suddenly are often the first notice, to the physician, of the inflammation of the lungs.

In the fifth chapter M. Grisolle goes on with the symptomatology, considering each symptom in a separate article. Of 301 patients, pain in the side was wanting in only 29. In four-sevenths of the cases it was felt near the nipple. Is this pain merely pleuritic? An examination of M. Grisolle's own cases has produced in him the conviction, that inflammation, strictly confined to the pulmonary tissue, does give rise to a sharp lancinating pain. As a general rule, the dyspnœa and the number of inspirations are in proportion to the extent of the inflammation of the pulmonary tissue—though there are exceptions to this rule. Thus, in several patients observed by M. Grisolle, the dyspnœa was moderate, the number of respirations in a minute did not exceed thirty, and yet at the autopsy both lungs were inflamed, or the disease occupied the whole of one lung; whilst in

other cases, where the pneumonia was in a very limited extent, the dyspnœa was extreme, and there were from 50 to 60 respirations in a minute. Our author frankly avows his inability to explain this. Is the pain a cause of dyspnœa? This question is answered in the negative by a comparison of two groups of 16 patients each, which have been selected with a view to their resemblance in all points except the pain in the side; the patients of one group having been free from it, and it having been a prominent symptom in those of the other. Nor is any difference found in the dyspnœa of pneumonias of the superior and those of the lower lobes of the lungs, as ascertained by a similar appeal to facts. Of 90 patients, in whom the disease came on in the midst of perfect health, not having been preceded by bronchitis, 80 of them coughed in the first 12 hours, 6 did not cough till the end of the first day, and 4 patients were free from cough till the close of the second day. Paroxysms of coughing were neither as frequent nor as troublesome as in bronchitis. Even in severe and fatal cases, in 10 of 12 the cough was less frequent and less troublesome in the last days of life. The expectoration in pneumonia is an important and a characteristic symptom. At the same time there is a great variety in the appearance of the sputa, and the characteristic rusty sputa in some cases are wanting. Of 131 patients these sputa were observed on the first day in 45, in 31 on the second day, in 14 on the third day, in 14 on the fourth day, in 2 on the eleventh, and in 1 on the twelfth. Of 60 patients, the expectoration was at first rusty in 35, in 25 it was of the color of barley candy, and in 6 it was bloody. In all the patients who recovered, without one exception, the sputa which had been rusty or bloody became mucous or sero-mucous towards the close of the disease. Of 22 patients who died, the expectoration ceased in 9, in the last 24 or 48 hours of life. In 20 cases expectoration was white and opaque during the whole course of the disease. M. G. has remarked that certain epidemics are characterized by the absence of the characteristic sputa. In 14 patients, 5 of whom died, there was no expectoration at any period of the disease. In old people the characteristic sputa are frequently wanting, and so in children. MM. Valleix, Vernois and Kiwisch have found before the mouths and nostrils of new-born children suffering from pneumonia, a whitish or reddish foam.

In the article on inspection of the chest, M. Grisolle relates two cases which show that a partial or general dilatation of one side of the chest may be caused by a simple pneumonia, independent of any pleurisy

symptoms from auscultation. From a few cases in which M. Grisolle had an opportunity to examine the chest of patients in whom the disease had commenced within a few hours, he is inclined to the opinion that a feeble respiratory murmur may be the earliest stethoscopic symptom. It does not last long, however, for it was found by him, at the commencement of the second day, in only one-sixteenth of his cases. In 3 cases it was the only sign from auscultation in the first 7 days. The puerile respiration which has been given by Dr. Stokes as an early stethoscopic sign of the disease, is not considered to be so by M. Grisolle, as he has never observed it. In the great majority of cases, the crepitous rale is the first symptom that is detected on putting the ear to the chest. In only 4 cases was M. Grisolle sure of the absence of rale through the whole course of the disease. Still, in 34 patients this rale is what was commonly designated as sub-crepitous. In the aged this last rale is oftener found than the crepitous, and in an epidemic of 1837, M. G. observed 18 patients in whom he could never detect the characteristic crepitous ronchus.

The passage from the first to the second stage is sudden in a majority of the cases. In some, however, M. G. has heard, during inspiration only, a sound which he compares to the tearing of new silk, in other cases to the rustling of it. This is sometimes heard only on coughing, and at the same time with the crepitous rale. In one case, where an opportunity to examine the lung was offered, viz. soon after having heard this sound, an induration limited to the surface of the lung was found to explain it. In 10 patients, this sound having been heard during two or three days, was replaced by bronchial respiration. The remark made first by the late Dr. James Jackson, Jr. of this city, that the expiration becomes bronchial at an earlier period than the inspiration, is confirmed by the observation of M. Grisolle. Since in 3 cases, where the whole lung was hepatized, bronchial respiration was heard up to the very last moment of life, our author cannot agree to the opinion of Dr. Stokes, that bronchial respiration requires for its production not merely the solidity of the lung, but a certain expansion of the side during respiration. In the neighborhood of congested and hepatized parts of the lung, our author has found a feebleness of the respiratory murmur to be the most usual physical sign, with a certain degree of dulness, and a want of elasticity on percussion. In 35 patients the condition of the healthy lung was carefully watched and noted through the disease, and in only 3 of these was there any puerile respiration. Bronchial respi-

ration is as important a symptom in the child as in the adult, and it does not present any remarkable differences as found in the aged. In 4 patients, observed both by MM. Chomel and Grisolle, there were no auscultatory signs at any period of the disease.

In the second article of the chapter we are now analyzing, our author considers the general and sympathetic symptoms, devoting to each a separate section. In the first of these he treats of the symptoms from the organs of circulation. In more than one-fourth of his patients, the pulsations of the artery were 100 in a minute; in more than half of them they were from 100 to 116; and in less than one-sixth, from 116 to 140. With some few exceptions the quickness of the pulse was always in proportion to the extent and severity of the disease. The exceptions to a correspondence between the number of the pulsations and that of the respirations, were quite numerous. But our limits will not allow us to follow our author any farther in this article, though it should be faithfully studied by the reader. The sections on the state of the blood and urine, are particularly interesting, but we can only stop to notice a few of the modifications of the symptoms of the disease when it comes on in the course of other affections. Of 47 of these cases, in 26 there was no pain in the side. At the same time the dyspnœa and the number of respirations are not in proportion to the extent of pulmonary lesion. The characteristic expectoration was wanting in 20 of 26 of these patients. The disease may be recognized almost always by the physical signs. In adults a sudden augmentation in the frequency of the pulse generally draws the attention of the physician to the disease, and an increased temperature of the skin is almost always found at the same time. An inflammation of the healthy lung coming on in the course of the disease of the other, is almost always to be recognized by the aid of physical signs, and these generally are the only ones by which the invasion of the disease is marked.

We pass over the sixth chapter, on the course of the disease, to the seventh, on its termination. Great importance is attached by M. Grisolle to the returning crepitous ronchus as a symptom of resolution. In some cases under his observation it has existed only for a few hours, so that although in some patients bronchial respiration at one visit had been replaced at the next by a feeble respiratory murmur, he is not prepared to say, that in the interval between his two visits there was not any crepitous ronchus. Though the progress of resolution at first be rapid, several weeks often elapse before the lung

recovers perfectly its elasticity. Thus, of 103 patients who left the hospital from the 20th to the 55th day, able to resume their occupations, in 37 only were the resonance and respiration perfectly healthy. M. Grisolle had attributed the feeble respiration and the rales found in convalescent patients, to œdema of the lungs, till he had had an opportunity of inspecting the organs of one of these patients. He found the pulmonary tissue in this case of a dark-red color, still somewhat friable in points, drier, less supple, swimming in water less perfectly, but not œdematous. Is the commencement of resolution marked by local or by general signs? Of 192 patients, in 94 a diminution of the febrile symptoms took place exactly at the same time with an improvement in the physical signs. In 72 others it was not till the febrile symptoms had subsided for two or three days, that any improvement could be detected by auscultation and percussion; whilst in 26 patients the pulse continued to be as quick and the skin as hot, when the local symptoms were disappearing. M. Grisolle examines with great care the question of crises and critical days. In 22 patients copious sweats accompanied the resolution of the inflammation, in 6 others convalescence was accompanied by an eruption of herpes on the upper lips. Of 38 patients, in only 5 was the amelioration marked by spontaneous deposite from the urine. In several others a more or less copious deposite was determined by nitric acid a day or a few hours before the announcement of convalescence in other ways. In 2 cases a hemorrhage preceded the commencement of a return to health. As to the doctrine of critical days, our author has proved its inadmissibility.

The termination of pneumonia in suppuration is not recognizable by any of our means of exploration. M. Grisolle considers this subject very fully, and such is his conclusion. The seats of the disease and the age of the patients appear to have an influence on the rapidity with which the inflammation passes from the second to the third stage. Grey hepatization of the upper lobe was found at an earlier period than that of the lower. The mean age of the subjects in whom there was simply red hepatization, was 41 years; that of those in whom the lungs were in the two stages, was 48; whilst those whose lungs presented only the grey hepatization, were on the average 51 years of age. Inflammation of the upper lobe in the very feeble and the aged, also more frequently terminates in abscess, than when the disease exists under opposite circumstances. Thus, of 16 cases of pulmonary abscess, in only 2 were the subjects attacked by

the disease when strong and in good health. Nor is this termination of pneumonia always to be recognized by physical signs, as is shown by several cases on record, and brought forward by M. Grisolle. He has not found any case, either amongst those observed by himself, or of those recorded by others, which has resulted in a return to health. Still he is far from denying the possibility of such an occurrence. He only says, that in the present state of our knowledge, there is no sufficient evidence of such a recovery. Laennec, it is well known, has expressed an opinion that gangrene is hardly to be considered as one of the modes of termination of pneumonia. M. Grisolle has seen 9 or 10 cases of gangrene, but in none of them was the disease consecutive to a simple inflammation of the lungs. The 305 cases of pneumonia which he analyses in his book, all terminated in some other way, and of 70 cases of pulmonary sphacelus, reported in the books and journals of the last 25 years, in only 5 was the disease preceded by pneumonia. In only one of the cases observed by our author, has the disease assumed a chronic form. Nor has he been able to obtain any materials for a history of chronic pneumonia from other sources.

The course and termination of consecutive pneumonia is considered in an article by itself, and then we come to the eighth chapter, on the complications of pneumonia. Of 247 patients, in whom the condition of the pleura was accurately observed, in 31 there was undoubted evidence of the existence of an effusion, which, however, did not appear to moderate or circumscribe at all the pulmonary inflammation. The analysis and comparison of his cases proved to M. Grisolle, also, that this complication did not modify essentially the course of the disease, nor its anatomical characters.

Bronchitis comes on in the course of the disease in a quarter of the cases, and with a seven fold greater frequency in men than in women. Of 58 patients in whom the condition of the heart was examined every day, 12 presented symptoms referable to this organ. Amongst these were three cases of pericarditis, and in 8 others the sounds of the heart were modified. But neither in these, nor in the character of the pulse in the same cases, does M. Grisolle find any thing like positive proof of the existence of fibrinous clots in the heart, to which such symptoms have been referred by M. Bouillaud. Jaundice has been observed by our author 20 times in 277 patients. This was the only symptom indicative of disorder of the liver in six-sevenths of these cases. Of 290 patients, 27 were delirious at

some period of the disease, and adding to these cases those to be collected from different writers, so as to have 435, in one-eighth there was more or less of delirium. This symptom was more frequently met with in males, in the proportion of 21 to 5. Pneumonia of the summit is not more frequently accompanied with delirium than that of the base. In two-thirds of the cases, this symptom could not be explained by any lesion of the brain or of its membranes, nor is any connection to be traced between this symptom and a more extended pulmonary lesion. In fact, in many cases no cause for the delirium can be discovered.

The forms or varieties of the disease are considered by our author in his ninth chapter. In bilious pneumonia, the complexion is yellow, there is a bad bitter taste in the mouth, a dull headache, a dull pain at the epigastrium. M. Grisolle has observed 10 such cases in six years. Laxative remedies are followed in these cases by great relief. Our author also admits a typhoid, a catarrhal, an intermittent, and a latent pneumonia. Under this last form he gives the history of an old woman, who came to see him to ask him for a laxative, as she had lost her appetite. The woman manifested no appearance as if suffering under a severe disease. She had no pain, her skin was cool, and a slight frequency and irregularity of the pulse might be explained by an old disease of the heart. The patient ate and walked about a good deal in the course of the day; towards the close of it she seated herself and died suddenly. At the autopsy more than half of the right lung was found to be in a state of grey hepatization. From this and other cases, M. Grisolle takes occasion to remind his readers, that very slight symptoms in the aged should give rise to anxiety in the physician, as in them most extensive and most important lesions sometimes give rise to but few and trifling symptoms.

We pass over the two following chapters, on convalescence and the causes of death, to the twelfth, in which our author treats of the influence of pneumonia to produce, and modify the course of, other diseases. What effect has it on tuberculous disease? We know that many observers of the present day, have expressed an opinion, that in the lungs tuberculization and inflammation are intimately connected. M. Grisolle has studied this subject with great care. He questioned 72 phthisical patients on their anterior diseases. Two of them had had all the symptoms of pneumonia three or four years before the first appearance of their tubercular disease, and in two others this last affection appeared to succeed immediately to an acute in-

flammation of the lungs. M. Louis obtained similar results from 80 patients. From these facts, and from others observed by himself or by different writers, M. Grisolle concludes that pulmonary consumption succeeds immediately to pneumonia, in less than a thirtieth of the patients who have been observed with reference to this point; 2dly, that even in these cases, the probability is, that the tubercles had been deposited in the lungs before they were inflamed, and had perhaps even excited the inflammation; 3dly, that in some very rare cases, such as have never fallen under his own observation, where miliary tubercles have appeared to be developed in hepatized lungs, the pneumonia has acted as an occasional and not as a direct and existing cause. And that pneumonia does not often even excite the deposite of tubercles in the lungs of those predisposed to such disease, must be inferred from the fact that of 305 patients observed by our author, 22 presented what are called the constitutional signs of phthisis, and more than half of them had lost several of their near kindred by the disease, and yet every one of these individuals recovered perfectly. From an analysis of the histories of 11 tubercular patients whose lungs, already diseased, were affected with acute inflammation, the conclusion of our author is, that acute inflammation in a tuberculous lung is generally limited to a small extent and to the neighborhood of the tubercular disease, that it is not accompanied by severe symptoms, that its course is regular and its mean duration from 12 to 15 days, that it rarely proves fatal, and that it does not appear to aggravate the primitive disease. Corvissart, and within a few years, M. Bouillaud, have attributed an active influence to pneumonia in producing organic diseases of the heart; but M. Grisolle, after a full discussion of the subject, and an examination of all the facts to which he has found access, can admit that such an influence exists only in very rare cases. But that pneumonia has a more unfavorable influence in pregnancy than almost any other acute disease, cannot be disputed. Of 15 pregnant women attacked by the disease, 9 died.

Diagnosis.—This chapter is very elaborate and very satisfactory. The existence of the disease; the parts of the lungs attacked and the part threatened; the degree and the terminations of the disease; its symptomatic and anatomical form; its distinction from other diseases; the diagnosis of secondary pneumonia, are treated of in separate sections. A fine crepitant rale is regarded by our author as pathognomonic of the disease. He does not, however, agree with MM. Barth

and Roger, that the existence of a crepitous rale under one of the clavicles, when no morbid signs can be elicited from other parts of the lungs, is characteristic of inflammation around a deposit of tuberculous matter. He has seen two patients in whom these stethoscopic signs were confined for several days to the infra-clavicular space, and yet there was no reason to believe in the existence of any tuberculous disease. Again, in 10 patients, who were attacked by pneumonia in the course of tuberculous disease, the acute inflammation followed the same course as in other cases—that is, the first signs of the disease were heard in the sub or supra spinous fossæ, and only subsequently under the clavicle. It is correct, however, to say, that a crepitous rale heard over a small circumscribed space of the upper part of the chest, justifies a suspicion that the patient is attacked by pulmonary consumption. Bronchial respiration, according to our author, is by no means pathognomonic of the disease on which he writes. It exists in dilatation of the bronchi, in apoplectic and cancerous disease, as well as in red and grey hepatization. In the adult and aged, pleuritic effusions are also accompanied by bronchial respiration. We were glad to see this result of our author's experience; for, notwithstanding the opinions expressed by many authors, that bronchial respiration was so characteristic of inflammation of the lungs, and although others, admitting the respiration to be so modified in pleuritic effusions as to partake of the bronchial character, have given the means to distinguish between it and true bronchial respiration, we have not been able to obtain, in this way, a diagnostic mark between pleurisy with effusion, and pneumonia. And we believe, too, that mistakes have often been committed in cases of pleuro-pneumonia, by supposing a great part of the lung to be hepatized, which in reality was only compressed by an effusion. Another question examined by our author, and which had already been decided by Laennec in the affirmative, is as to the possibility of detecting central pneumonia, particularly where the disease occurs in a lobular form. He here relates two cases, in which a thin stratum of healthy lung, intervening between the ear and an extensive hepatization, completely prevented any morbid sounds being heard, on careful and repeated examinations. He introduces other facts to confirm the opinion, which would naturally be drawn from these, that auscultation is not to be trusted when the disease is not seated in the surface of the lung. Our author, from his facts, is also led to the conclusion that carnification and splenification are not to be distinguished with cer-

tainty from hepatization. We are glad to see that M. Grisolle, in considering the difference in symptomatolgy between pneumonia and pulmonary œdema, expresses his surprise at the generally received opinion that a sub-crepitous or mucous rale is a characteristic sign of the latter disease. He remarks very properly, that a rale can only be determined by some disease of the bronchi or of the vesicles, and that certainly an effusion of water in the cellular tissue, outside of the air tubes, cannot give rise to a ronchus of any sort.

Prognosis is the subject of the fourteenth chapter. The old assertions and aphorisms which have been handed down in the profession are examined by our author. He takes nothing for granted, but adding to his own facts such others as he can collect, he make a severe and careful analysis of the whole, and gives us the results. The different points are discussed in different sections, of which there are twenty. The influence of age may be seen in the following table, and these results are confirmed by a wider experience. Of 63 fatal cases of pneumonia observed at Geneva, in the year 1837,

7	were in patients	under	1 year,
4	in those	from 1 to	3 years,
3	"	"	3 " 10
1	"	"	10 " 20
2	"	"	20 " 30
2	"	"	30 " 40
6	"	"	40 " 50
12	"	"	50 " 60
12	"	"	60 " 70
11	"	"	70 " 80
3	"	"	80 " 90

We see, then, how fatal a disease is pneumonia, when it occurs in the first months of infancy; that it is much less so in the following years, there being only 5 deaths in those between 10 and 40 years of age. The records of Salpetrière and Bicetre confirm most fully the results of the above table, as to the very great mortality of the disease in old age. If men are more frequently the subjects of pneumonia than women, the disease is decidedly more fatal in the latter. According to M. Grisolle's analysis the mortality in subjects of a feeble, broken down constitution is twice greater than in the strong and vigorous. This fact harmonizes with the greater mortality in children, women and the aged. In 17 drunkards, in whose histories all other circumstances but the habitual use of alcohol were, so far as

could be ascertained, favorable to recovery from the disease, the mortality was one-fourth. M. Grisolle cannot discover any influence from the seasons of the year. His experience goes to confirm the general belief of the great difference of mortality in different epidemics. In two groups of 70 patients each, the one of disease of the right, the other of disease of the left lung, the other circumstances in the histories of the patients of the two groups being as nearly as possible the same, the mortality is exactly the same, one-seventh. In double pneumonias the mortality was 7 in 16, though it must be remembered that the average age of these patients was 10 years greater than that of the others. The mortality of pneumonia of the upper lobes in patients of from 36 to 38 years of age, was one fifth; whilst in similar patients, where the disease was of the lower lobe, it was one-eighth. This result does not agree with the opinion of M. Andral, but it is confirmed by the researches of M. Lestier. No certain indications for the prognosis are to be obtained from the frequency of the respiration, nor from that of the pulse. An abundant deposite from the urine, not albuminous, is an indication of recovery. The following table shows what are the conclusions as to prognosis in cases where the treatment is commenced at an early, and in those where it is deferred to a later period.

In patients who entered the hospital during the 2 first days of the disease, the mortality was	1-13
In those who entered on the 3d day,	1-13
4th,	1-8
5th,	1-8
6th,	1-4
7th,	1-3
8th,	1-2
9th,	1-3
10th,	1-3

The prognosis is not a grave one in patients affected with hypertrophy or valvular disease of the heart, but who are able to attend to their ordinary affairs. Thus of 6 such patients, only one died, and he was more than 70 years of age. Nor is the prognosis grave in phthisical patients where the disease is not much advanced.

Treatment.—The reproach often addressed to French pathologists, that they consider therapeutics as comparatively unimportant, and neglect them, will not apply to M. Grisolle. A large part, in fact nearly a quarter of his book, is devoted to this subject. And

his results as to the effects of remedial agents in the disease are obtained by the same careful analysis of facts, on which he has depended for answers to inquiries on other points. He remarks at the outset, that the proper treatment of pneumonia cannot be a simple one, nor one of formulas. Individual cases of the disease differ, and the treatment must be varied according to the different circumstances. So, when we inquire as to the efficaciousness of remedial agents, and compare them, we must take into our account a great variety of circumstances which may exercise a modifying influence. Our author begins with bloodletting, and he asks first, is it useful in the treatment of pneumonia? M. Biett abstained from it, and from other remedial agents, except poultices and demulcent drinks, in the treatment of all the pneumonic patients who were placed in his wards during a year. Nearly all of them recovered. M. Magendie boasts of the success of a similar practice in his own hands. M. Grisolle, desirous to obtain some facts which might enable him and others to decide on the safety of the course pursued by the above gentlemen, did not feel himself at liberty to try the experiment directly on the severely ill. In the year 1840, however, 11 patients, one only, 56 years of age, came under his care, and as the general symptoms were mild, and the local symptoms indicated that the disease was of limited extent, he kept them in bed without food, giving them demulcent drinks, and occasional laxatives. These persons came into the hospital on the fourth day, as averaged; in 9 of them the signs of red hepatization at that time were unequivocal; in 2, the disease appeared to be still in the first stage. The characteristic expectoration in these cases continued, on the average, till the ninth day, the pain in the side still longer, and altogether the local symptoms were present during a period of time which was not at all in proportion to the extent and severity of the disease. There was an interval of four days between the complete cessation of the fever, and the commencement of resolution as indicated by physical signs. To compare with this group, M. G. selects another, also of 13 patients, of about the same age, and in whom the disease was of about the same severity and extent. One or two general or local bleedings were employed in each case, and on the fourth day of the disease, as averaged. The characteristic sputa had ceased before the close of the sixth day of the disease. The pain in the side, very severe in some cases, was less in every case after the bleeding, and disappeared wholly on or before the eighth day. There was no fever

after the seventh day, and 24 hours later the patients were in full convalescence. The physical signs indicated the commencement of resolution at the same time that the fever ceased, and on the 12th day the lung appeared to be again in a healthy condition. There is certainly good evidence here of the usefulness of bleeding in mild cases of the disease. Our author finds no data to enable him to say what is the influence of this remedy to diminish the mortality.

Ought we to bleed in every case of pneumonia, is the next question examined by M. G. He cites from those, who have made the disease in the very young and very old their especial study, enough to show, that bloodletting is not infrequently advisable in such cases. He has observed himself 6 patients, with constitutions broken down under the influence of misery, bad food, grief, excesses, or previous disease, in whom venesection was attended by an aggravation of the symptoms, and a state of prostration increasing every time the vein was opened. Five of these patients died, whilst of another group of 6 patients, who resembled those of the first group as closely as possible, but in whom an application of cupping-glasses for a very moderate quantity of blood was the only species of bloodletting employed, all recovered but two. M. Grisolle does not find in the commencement of the menstrual discharge, nor in a state of pregnancy, nor in profuse perspiration, sufficient reasons why he should abstain from bleeding. Is bloodletting to be employed at all periods and in all stages of pneumonia? M. Grisolle cannot define the period at which bleeding is inadmissible. He has seen cases where this remedy was called for on the 12th, the 15th, the 17th day of the disease. He has verified the correctness of the remark of M. Louis, that in patients who were bled during the first 4 days of the disease, convalescence commenced four or five days earlier than in those who were bled for the first time at a later period. M. Andral has expressed an opinion, that bleeding may be had recourse to in the third stage of the disease. As long as there are no means of distinguishing, during life, the state of grey hepatization, the question cannot be settled. M. Grisolle has seen four patients with purulent infiltration, in whom a loss of blood was followed almost immediately by a fatal result. How many bleedings should be made, and with what interval? We cannot follow our author in his examination of the opinions and practice of different writers, in different periods and countries. We ought not, however, to pass over in this way his criticism of the treatment proposed and employed by M.

Bouillaud, who gives a formula of bleeding applicable to all cases, by the use of which he professes to cut short or strangulate the disease. Thus he recommends 4 bleedings, each of from 12 to 16 ounces in the first 24 hours. These are to be followed at short intervals by two, three, or four more bleedings, according as the disease subsides more or less perfectly, so that the patients are to lose in all four or five pounds of blood. To prove that the advocate of this treatment applies it indiscriminately to the weak and feeble, as well as to the strong and vigorous, a case is cited from his clinical reports, of a man much exhausted by a diabetes mellitus of more than a year's standing, who was attacked in the course of this last complaint by pneumonia. He was bled, however, three times, 12 ounces were taken each time, and he died before the close of the first week. M. Bouillaud regrets that a fourth bleeding had not been practised; that the *strangulating* treatment had not been fully carried out, and takes occasion to say, that in future he shall apply his formula inflexibly to any similar case that may come under his care! We must admit, then, that M. Bouillaud has laid down simple rules of treatment, so exactly stated, so general, that even the unprofessional person would be able to manage the disease. Now it is with doing this very thing; this attempting what is manifestly impossible, in view of the complication of the subject and of our imperfect knowledge of it, that M. Louis, and what has been called the numerical school, have been reproached. M. Grisolle, who professes to be of this same school, takes occasion however to inveigh strongly against any attempts of this sort. He sets forth the great variety of circumstances, the endless differences in individual cases of disease, and as he goes on to examine the statistical reports by which M. Bouillaud endeavors to prove the influence of his treatment to diminish the mortality in the disease, and to abridge its duration, we see very clearly that the clinical professor of La Charité is not to be depended upon for careful observation nor for exact analysis. To let our author speak in his own words,—"In order to prove the efficaciousness of any treatment," we must not be contented with merely adding up the number of "deaths and those of recoveries, and then drawing conclusions, as this would be a mere calculation requiring little intelligence, and having less scientific value than the approximate results which would be given by an attentive observer. We must repeat it, inasmuch as there are so many who will not understand it, that medical statistics, as understood by the school of observation,

do not consist in putting numbers together, but in the analysis of facts before they are counted. Every circumstance, whether its effects on the disease be remote or direct and immediate, should be taken into the account. In fact, we should adopt the remark of Zimmerman, one of the most philosophical of physicians, that the only method of becoming acquainted with an object, is to examine it in detail, to reduce it to its simplest elements, until analysis can be carried no farther." That M. Bouillaud has not acted in this manner, is most clearly shown by our author. Thus an account of 75 cases has been given by a disciple of M. B., which is published in the memoirs of the Academy of Medicine. The mortality in these cases was 1-9. But on examining them, in 25 the treatment by repeated bleedings was not employed. Excluding these, therefore, there remain 49, of whom 6 died, which gives at once a mortality of 1-8. But to look at these cases a little more in detail, it will be found that the age of these patients on the average was less than 33 years. Consequently, as to age, these patients were in most favorable circumstances. And they were so, too, as to the extent and severity of the disease, as in 16 it had not yet reached the second stage, and in only 13 was the stage of hepatization perfectly established. Again, of M. Bouillaud's patients only .08 were females, and yet the mortality in this sex is the greatest. The results, therefore, may be explained in great part by other circumstances, and are not to be attributed merely to the remedial agents. And so as to the duration of the disease, which according to M. B. is reduced one-half, when we examine into his cases published a few years since, we find that he has given the duration of the treatment instead of that of the disease. Thus 22 patients were said to have been ill only 9 days, but when the days of illness previous to their entrance into the hospital were added, the duration of the disease became 15 days instead of 9. Subsequently he abandoned this mode of computation, but instead of taking the signs of convalescence, agreed upon as such, by other authors, he is satisfied to take, as the last day of the disease, that on which the characteristic signs of the fever have almost disappeared. In this way he gains two or three days. After these explanations, M. Grisolle gives us the results from the cases observed by himself, and institutes a comparison between them and those of M. B. In these patients bloodletting was proportioned to the age and constitution of the patients, to the form, severity, and extent of the disease, nor was it repeated, except with reference to the effect produced the

first time. Some of these individuals lost only 6 or 8 ounces of blood; in others depletion was carried to the extent of 9 or 10 pounds. M. Grisolle divides his patients into two classes. In the first he puts 50 patients, in whom the disease was still in its first stage. Sixteen of these individuals were females; 4-5 of them had a moderately strong constitution, the others were feeble persons. The average age was 40. In 36 of these cases, including 3 of double pneumonia, the symptoms indicated such a degree of severity in the disease, as to inspire fears about the ultimate recovery of the patients. The mortality of this group was 1-10; convalescence commenced on the average about the 10th day, and at the end of the third week the patients were able to resume their ordinary occupations. Of 22 patients in whom the inflammation of the lungs was still in the first stage, M. Bouillaud only lost one. But they were younger subjects, their disease was much more limited and less severe, and yet convalescence in these patients had hardly commenced the 10th day. They lost on the average 3 1-4 pounds of blood.

M. Grisolle's second class includes 182 patients (143 men, 39 women), in whom the pneumonia had passed to the second stage when the treatment commenced. The average age of these persons was 25; their constitutions more or less robust in 3-4 of the cases, was feeble in the others. The disease was severe in all; in 12, both lungs were affected. The quantity of blood taken varied very much in the different cases, but it would average 3 pounds; 32 of these died, so that the mortality is to be estimated as a little more than 1-6. In 69 of the cases of recovery, the 12th day was the average period for the commencement of convalescence. Our author goes on to study his cases more in detail; to inquire how far the disease and how far its symptoms have been modified by the treatment. We can give only his conclusions. The disease itself was not immediately arrested in any case, and no one of the symptoms (except the pain in one or two instances) was removed by the bloodletting. The relief after the bleedings of the first days was not so marked as that experienced by those patients who were bled for the first time at a later period of the disease. MM. Chomel and Louis had previously established this fact, and M. Grisolle adopts their explanation, that in the latter cases the disease was approaching to its natural limit when the remedy was employed. Would more copious bloodlettings have been more efficacious? A careful examination of the cases published by M. Bouillaud shows very clearly that his pa-

tients lost two pounds of blood more than did those of M. Grisolle, and without any benefit, any abridgement of the disease itself, any alleviation of the symptoms.

From what precedes, no one can doubt that bleeding is a useful remedy in pneumonia, but at the same time it must be allowed that its efficaciousness has certain limits, and is less than it was formerly supposed to be. The treatment by the tartrate of antimony has been much lauded, and M. Grisolle gives the results of those who have tried it, and endeavors to appreciate the evidence in its favor to be found in the writings of different authors before submitting the results of his own experience. He has 154 cases, in which this remedy was employed as recommended by the Italian school, but for examination he divides them into three classes. In the first are 44 patients, who were treated in this way from the first, bloodletting not having been used at all. In 35 of these patients the lung was hepatized when they came under treatment. All of them were alarmingly ill. The pulse was less resistant than it often is, but in none of them were the symptoms from the circulation such as to forbid bleeding. The treatment was commenced the fourth day on the average. The drug was employed in divided doses, so that the patient took the first day from 4 to 6 grains in a demulcent mixture. If the immediate effects of the medicine were very great, some narcotic syrup was added to the potion of the second day, and the period during which the remedy was continued averaged 3 1-2 days. The immediate effects were marked in every case, the bowels suffering rather than the stomach. Six of these 44 patients died, a mortality of 1-7, whilst in the cases collected by M. Grisolle from different authors, the mortality is 1 in 12. In 23 of M. G.'s patients the pain was relieved the first day, and in 5 who suffered greatly from the pain, it disappeared at once and entirely. In 27 of the 38 cases of recovery, the pulse had fallen from 10 to 20 beats at the close of the first 24 hours. In 18 patients the physical signs at the close of the first day, indicated the commencement of resolution. The mean duration of the disease was 10 days. Twenty-eight who remained that time in the hospital, were able on the 20th day to resume their labors as carpenters and masons. There was no proportion between the rapidity of the recovery and the immediate effects of the tartar emetic. In half of the patients who died the remedy at first seemed to act favorably in the disease.

M. Grisolle's second class consists of those in whom the treatment

of Laennec was employed. The patients were bled, once or twice according to the symptoms, and then were put upon the tartar emetic. Eighty patients are included in this class, their age in the average being 35 and a half years. The lung was hepatized more or less extensively in every case. The fifth day was the period at which, as averaged, the patients first came under treatment, and the sixth or seventh day that in which the tartar emetic was first administered. The average duration of this treatment was 4 days. Ten of these patients died, a mortality of one-eighth. The principal symptoms of the disease disappeared as rapidly as in the patients of the first class. In two-thirds of the patients there was a rapid progress towards recovery at the close of the first 48 hours of this treatment. The convalescence of the 70 patients who recovered, was established on the 14th day as averaged. The comparative length of the disease in these cases is to be explained, however, by its severity, and by the later period at which the patients first came under treatment. And the mortality in the third class is to be explained in a similar manner. These patients were 20 in number, so weak and so exhausted that bloodletting was impossible. Eighteen of them died. The beneficial influence of the tartar emetic in these cases is proved by the rapid amelioration in the symptoms which followed its administration. In 9 of them, whose lives were in the greatest peril, the general and local symptoms became so favorable after the first, second, or third potion, that great confidence of their ultimate recovery was entertained.

The mode of administering the tartrate of antimony, its effects, contra-indications to its use, accidents determined by it, are all fully considered by our author. He then examines how far other preparations of antimony are efficacious. Several other remedial agents are now passed in review, and then under the class of hygienic remedies several others are examined by our author. Of blisters, that they are useless and inefficacious, cannot be demonstrated from his facts because there are not enough of them. However, from an analysis of the 38 cases in which he has seen them applied, he draws the following conclusion. Whatever be the part of the body to which they are applied, and whatever be the period of the disease in which they are used, no advantageous influence on the termination, the course or the duration of the disease is to be hoped for. The only exception to this general rule is, in cases where pain in a limited part of the chest continues during the convalescence, the application of a

blister will generally be followed by its disappearance. M. Louis has recorded his experience to the same effect, and we must say that such too have been the results of our own observation of the effects of epispastics.

The articles on the treatment of consecutive, typhoid and bilious pneumonia are full and interesting, but we must hasten to a close. In M. Grisolle's general conclusions upon the treatment and mortality of the disease, he again cautions his reader not to consider it identical in all cases; and not to treat by the same means patients in whom the anatomical condition of the lungs, as far as this can be ascertained by physical signs, may be nearly or exactly the same. The source of the principal indications for treatment is to be found in the general symptoms. Bleeding and antimony, properly combined, are, according to M. Grisolle, the true remedies in the disease. The bleeding may be local or general, according to circumstances; the local symptoms sometimes yielding rapidly after an application of cupping glasses or leeches. We will close this article by citing the concluding sentences of the volume. "It is with great confidence that I recommend the treatment which commences with bloodletting, and follows on with the administration of the tartrate of antimony in large doses in all those cases where the condition of the individual or the peculiar features of the epidemic do not forbid. The care with which I have studied the subject makes me hope that I am not deceived, and I think that I can say with Sydenham, that the treatment which I recommend is that which I should prefer in my own case were I attacked with the disease, the history of which I have thus traced."

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Bibliographical Notices.

I.—*Lectures on the Theory and Practice of Physic.* By William Stokes, M.D., Lecturer at the Medical School, Park Street, Dublin, and John Bell, M.D., Lecturer on Materia Medica and Therapeutics, &c. Philadelphia. Second Edition, 2 vols. Barrington & Haswell, 1842.

In 1840, Dr. Bell published his first edition of Dr. Stokes' lectures with large additions by himself. So early an appearance of a second edition is alone a sufficient expression of the favorable reception with which it met. His second edition contains still more copious additions of his own, until the work has now assumed the form of a quite complete system of medicine, equally valuable as a text-book to the student, and a book of reference to the practitioner. All the matter which he has himself added, and that which he has incorporated from other works of Dr. Stokes, he has thrown into the form of lectures, by which the uniformity of the work is preserved, and a didactic familiarity and ease is gained, which often renders such works more readable and more acceptable to the student. The arrangement of the subjects, and the method in which they are treated, is good, except perhaps that we should agree with Dr. Bell in the doubt, which we see by his preface he has felt, whether in a work of which the peculiar value is its practical value, it is useful to devote quite so large a space as he has done to such a disease as the cholera, of which there is little likelihood that the reader will ever see a case, and for a knowledge of which, as a matter of curiosity or proficiency in his education, he can refer to more elaborate treatises elsewhere, while the space, which is limited, might be occupied by a more full examination of other diseases with which he will have to be more familiar. Condensation, and the exclusion of all extraneous matter, and such as is not of practical importance, should be prominent objects in the compilation of such works. Many important subjects are treated with great clearness and fulness. Among others we would notice cholera infantum, a disease of such fatal interest to us, and for a true description of which we look in vain through the

works of English or continental writers. Diseases of the kidney, also, to which so much attention has of late years been given, he has treated as methodically and definitely as conflicting theories and the present state of our knowledge of them will admit. Excepting a lecture upon neuralgia, and one upon epilepsy, Dr. Bell has left the nervous system to Dr. Stokes. We know of no book of the kind which we would more readily place in the hands of a student, or to which we would more readily refer the practitioner for a hasty investigation of a subject.

II.—*Physician for Ships—containing Medical Advice for Seamen and other persons at Sea, in the treatment of Diseases, and on the preservation of Health in Sickly Climates.* By Usher Parsons, M.D., late Surgeon in the U. S. Navy, &c. Third Edition. Boston. 1842. Charles C. Little & James Brown. Pp. 216.

The first two editions have rendered this little book too well known to require any comments of ours. This third comes augmented by at least a fifth, comprising a more extended account of the diseases of sickly climates, and a very valuable chapter upon the choice of a residence for consumptive patients. This little book is in fact quite invaluable, and no ship should sail without it. We are convinced those ships have the best crews and make the best voyages, where owners and masters consult for the comforts of the sailor when well, and make provision for him when disabled. We would suggest for addition to another edition, a description of some of the chemical substitutes for yeast, which may be found in the late Glasgow Report, and which we should think might be usefully introduced both into our military and civil marine.

III.—*The London Dissector.* From the last London Edition. Revised and corrected by Edward I. Chaisty, M.D., late Demonstrator of Anatomy in the University of Maryland. Philadelphia. Ed. Barrington & Geo. D. Haswell. 1842.

We have just received the London Dissector, republished in Philadelphia by Dr. Chaisty. It appears in a very convenient form for

the use of the student. Its descriptions are very clear and concise, and, so far as we have discovered, it leaves no important point unattended to. The absence, however, of illustrations is a serious defect in a demonstrative work upon anatomy. A few lines in a wood cut will often facilitate greatly the young anatomist, and give him a clearer conception of a part than pages of verbal description; while the additional expense which it would have given to the work would have been of trifling importance compared with the advantage gained.

IV.—*Outlines of Human Physiology. Designed for the use of the Higher Classes in Common Schools.* By George Hayward, M.D., Professor of the Principles of Surgery in Harvard University. Fourth Edition. Pp. 216. Thomas W. Webb & Co. Boston. 1842.

We are gratified to see that this popular little work has reached a fourth edition, both because its merit most fully justifies its success, and because it indicates an interest felt by the public in the subject. One great reason, no doubt, why more attention has not heretofore been given to the study of human physiology, is that it has not been presented in a form at once agreeable and intelligible to the youthful mind. This deficiency is now supplied, and we trust that an increased demand for the work will continue to indicate an increased attention to the subject.

V.—*A Treatise on Diseases of the Heart and Great Vessels, and of the Affections which may be mistaken for them, &c. &c.* By J. Hope, M.D., F.R.S., &c. &c. First American from the third London Edition. With Notes and a detail of recent experiments, by C. A. Pennock, M.D., Attending Physician to the Philadelphia Hospital, Blockley. Philadelphia: Haswell & Johnson. Pp. 572.

A bibliographical notice by no means allows us space to comment upon the work before us. This third edition comes enriched with a third part new matter, the result of over one thousand cases observed by the lamented author, who too soon has sunk under labors which have found but few parallels. It is of the part the American editor,

Dr. Pennock, has taken in the book, that we wish chiefly to speak. Unlike the generality of American editors, whose editorship consists only in the revision of the proof sheets, Dr. P., in addition to a series of most valuable experiments, instituted by himself and Dr. Moore, of Rochester, N. Y., gives us interspersed in the text, the opinions and discoveries of Dr. Williams, Bizot, Bouillaud, Clendinning, &c., together with his own remarks upon their comparative value. His work is very creditable to all concerned, and foreign authors would have no reason to complain of American pirates, if their performances were improved as much as is the one before us.

VI.—*The Medical Student's Guide. Being a compendious view of the Collegiate and Clinical Medical Schools, the courses of Private Lectures, the Hospitals and Almshouses, and other Institutions, which contribute directly or indirectly to the great Medical School of Philadelphia,* 1842–3. By Heber Chase, M.D. Philadelphia. J. G. Auner.

The title of this little work sufficiently details its contents. It is on sale at Ticknor's, and should be purchased by any one desirous of availing himself of the many advantages which Philadelphia, from the extent of its institutions, alone offers.

VII.—*The Obstetric Guide.* By Joseph Warrington, M.D. Philadelphia. J. G. Auner. 1842.

This is an exceedingly useful little manual, intended, as the author wisely remarks, not to take the place of the more elaborate treatises, but to revive in the memory of the student the instruction given there and at lectures, and to facilitate the practical arrangement of his information.

VIII.—*The Select Medical Library* (New Series), *and Bulletin of Medical Science.* Edited by John Bell, M.D., &c.

The October number contains the well known lectures of Dr. Blundell upon the Principles and Practice of Surgery.

Scientific Intelligence.

EXTRACTS FROM THE REPORTS OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

SEPT. 12, 1842. *Spina Bifida in a boy* 16 *years of age, Spinal Marrow terminating at the* 4*th Dorsal Vertebra.*—Dr. Snow reported the following case.

N. T. was born in June, 1826, of decidedly scrofulous parents. At birth he was discovered to have complete paralysis of the body below the ribs. In the middle of the back there was perceived a small tumor, having upon its surface much the appearance of an old cicatrix without discoloration, and below this, in the lumbar region, an ulcer half the size of the hand, looking, as the mother said, like the outside of a fig. It nursed, however, as well as any child, and appeared to enjoy perfect health. The ulcer continued an open running sore for about six months, and then healed up entirely. His fæces were always passed involuntarily. They were generally quite costive, but not otherwise peculiar. His urine was also involuntary. It was always perfectly limpid as pump water, and never, as the mother assured him, had any sediment nor any urinary smell. It was much more copious than natural, until a short time before death, when it became scant, but without altering its character. His appetite was generally good, and he was not troubled with indigestion. In respiration there was as much action of the chest as in well formed-children. The sensation appeared to be perfect in the arms, and in the chest as low as the last ribs, except that he could not be tickled here nor in the axilla, as children commonly can. The tumor in the middle of the back was exceedingly tender, but the ulcer neither at first, nor when it broke out the second time, appeared to have the least sensibility. No notice was ever taken of caustics, nor of any other application which was made to it. The right leg was frequently swollen from œdema, but the left never. They were both always of a natural temperature, and not liable to become cold. Hair appeared upon the pubes when he was between 13 and 14 years old, but he never exhibited any sexual propensities, so far as could be learned. His mind was active, and he learned quickly, but was too fond of fun to apply himself greatly.

About two years before his death, the ulcer in the lumbar region broke out again, unattended by pain, febrile symptoms, or any thing which would

indicate its connection with the caries discovered after death. About three months before death a diarrhœa set in and continued two months. During the last month he appeared to be free from disease, excepting the ulcer, which for a year back had been growing more extensive, and now discharged profusely. He gradually failed, and died without the development of any new symptoms.

The examination was made by Dr. J. B. S. Jackson, who reported as follows:—The surface of the tumor over the middle of the back appeared as if cicatrized; beneath this was a coarse, white, cellular tissue, which contained no fat like the surrounding integuments, and beneath this a serous cavity, formed by the expansion of the spinal membranes, and partly filled with serum. The wings of the dorsal vertebræ, from the fourth to the ninth inclusive, were separated so that, midway, the little finger could be passed freely about within the cavity, at the upper extremity of which the spinal marrow was distinctly felt to terminate, as usual in spina bifida, by adhesion to the membranes posteriorly, and from this point downwards it was satisfactorily ascertained that the spinal marrow did not exist. Below this fissure the spinal canal was again completed by the union of the wings of the two next vertebræ, those of the last dorsal and first lumbar being also closely approximated. The four last lumbar and first sacral were wide open posteriorly, the wings on the right side being very imperfectly developed and partly fused, whilst those on the left side could hardly be said to exist; the foramina for the nerves, however, were sufficiently large. Throughout the lumbar region there was found in the situation of the spinal cavity a coarse, white, cellular tissue, surrounded for the most part by a firm membrane which appeared to be an extension of the dura mater, and upon this last the nerves terminated. The wings of the dorsal vertebræ, from the third downwards, were extensively fused, the last being also very irregular; bodies of the 5th, 7th and 8th formed throughout in two lateral portions. The spine at the dorsal region was strongly bent towards the right side, the bodies of the vertebræ at that part being narrower on that side than on the other. There was also a disease of the two first lumbar vertebræ, about one half of the bodies of these bones having been destroyed by caries, with their intervertebral substance; some new bone was thrown out upon them anteriorly, and a very considerable quantity of the same upon most of the rudimentary wings of the lumbar vertebræ on the left side, this new bone lying immediately beneath the ulcerated surface which existed during life, so as to be covered by little more than the granulations.

The thoracic and abdominal organs appeared sufficiently healthy; the liver was rather large and of a pale fawn color, but the lungs were not tuberculous.

The spine was removed as low down as the sacrum, and has been prepared for the Society's cabinet. Dr. J. remarked, that though this was not, anatomically, a common case of spina bifida, yet it was so essentially, and as such it was, so far as he was aware, the most remarkable on record, considering together the age of the subject, and the extent of the malformation.

Sept. 26, 1842. *Tuberculous Disease of the Spinal Marrow.*—Dr. J. B. S. Jackson exhibited a specimen of the above disease. It was situated at the sixth cervical vertebra, and involved almost the entire substance of the organ at that part, forming an opaque, yellowish, solid, well-defined and uniform mass about as large as the top of the little finger. The spinal marrow was somewhat enlarged at the seat of disease, and was a little softened just above and below it, but was elsewhere quite healthy. The membranes, also, were healthy, except for some thickening of the dura mater at the upper part. In the brain there was a copious effusion of serum, with complete softening of the septum. Extensive tuberculous disease was found in both lungs and in the intestines, besides similar disease in the prostate gland and in the kidneys.

The patient, an Irish laborer, æt. 42, died September 25th. Health quite good previously to the last year, and since then no local trouble except a disease of the ankle joint. The symptoms of spinal disease came on about three and a half months before death, and, when examined on the 13th of August, were as follows: diminished sensation, with hardly a trace of voluntary motion in the lower extremities, the upper being very much less affected; very frequent and involuntary contractions of the right lower extremity, tending to draw the limb up into a strongly flexed position, and attended with very severe pain; some contractions also of the left lower extremity, but without pain. Even on moving the bed-clothes, the muscles of the lower extremities would be strongly excited, and, in attempting to straighten them when they were drawn up, his suffering was very great. In the upper extremities these spasms were very much less. The bladder was completely paralyzed, so that the catheter had been used daily for the last three weeks. These symptoms continued with but little change till death, the spasms being on one occasion so violent that the patient was fairly jerked out of bed, and fell upon the floor, though fortunately with but little injury. He suffered much also from a morbid sensibility, and from neuralgic pains in the right lower extremity, passing up into the abdomen. Respiration was carried on by the diaphragm, the intercostal muscles seeming to be completely paralyzed. The catheter was used till the last month, after which the urine became involuntary; the dejections, also, were for the most part involuntary, whenever procured, the bowels being very costive. The spine was often examined, but the patient scarcely ever allowed any pain or tenderness there, neither was there any trou-

ble in the head worth mentioning. When first seen his general aspect was sufficiently well, but as the disease advanced, he became exceedingly emaciated, and for some time before death was very much sunken, with sloughs about the sacrum. As to his pulmonary disease, he had no symptoms that led to a suspicion of it; there was occasionally some dyspnœa, but, as it was generally accompanied with a feeling as of a cord about the lower part of the chest, it was attributed to the paralysis; the nurse, on being questioned after the death of the patient, mentioned an occasional, very slight cough during the last few days, but never before.

Oct. 24, 1842. *Cases of Typhoid Fever and Peritonitis, occurring in connection with each other.*—Dr. Hale related the circumstances of a case of puerperal peritonitis in connection with typhoid fever and other diseases, occurring in an elevated, airy, and apparently healthy situation out of town. Two months before, a nephew eight months old had died in the family of cholera infantum, in 36 hours from the attack, which was preceded by a mild diarrhœa of about a week's duration. A female domestic had been ill two or three weeks with a mild typhoid fever, and the patient's daughter, 20 months old, had had a troublesome but not very severe bowel complaint, for about the same length of time; and there had been other causes of unusual fatigue. She was at or near the full time of her second pregnancy, in ordinary health, October 4th, when she received a violent shock from having her little daughter fall down the chamber stairs. The child proved to be uninjured; but the mother was at the moment greatly agitated and became faint. She soon recovered, however, and thought herself unhurt, and rode out a short distance in the afternoon. In the evening labor came on, and at three o'clock in the morning of the 5th she was delivered. The child was dead. It was evidently not killed in the birth; the whole surface was pale and bloodless. There was nothing very remarkable in the circumstances of the labor, unless it were that the pains appeared to be more than usually distressing in proportion to their efficiency. She was tolerably well through the first day, but complained of her head; and the face was flushed. She had an active cathartic the second morning, and after the operation the head was relieved. On the morning of the third day there had been a chill; but there was no pain in the abdomen nor tenderness, pulse soft, not much quickened, lochia free; and as there was considerable nervous restlessness, it seemed doubtful whether this might not be the cause of the chill. In the afternoon there was tenderness, and some fulness of the pulse, and she was bled freely. This was followed by great relief. The circumstances of the night were peculiarly unfavorable. The fever patient had grown worse and become delirious, and her cries disturbed the whole household; and Mrs. L.'s nurse was attacked with severe vomiting and diarrhœa, and was compelled to leave

her. The following morning the pain and tenderness had returned, and all the symptoms were aggravated. She had leeches, calomel and opium, blistering, &c.; but she grew worse, became delirious, and died the seventh day.

The domestic, a girl 16 years old, had first an abscess in the ear, followed by a mild erysipelas of the face, and then typhoid fever of so light a character for two or three weeks, as only partially to confine her to the bed. The week before Mrs. L.'s confinement, she became convalescent; but in the beginning of that week, relapsed without any obvious cause, became delirious on the 7th of October, and died the 17th.

The nurse, who was attacked on the night of the 7th, went home the next day quite sick, and died in a week. She was examined, and there was found extensive peritonitis, with effusion of pus at the epigastric region and in the pelvis, without there being any local cause for the disease.

A sister of Mrs. L., mother of the child first mentioned, who had been with her much of the time, became decidedly ill on the 9th. She took medicine, and was so much better as to continue her attendance upon the sick bed until her death. She then went home sick. She was confined to her bed ten days, with a febrile disease, apparently not of a very determinate character, and then slowly recovered. A week after Mrs. L.'s death, the only daughter of the sister, a young lady 22 years of age, was attacked with symptoms which resulted in peritonitis. She died the ninth day. On examination, there were found extensive adhesions of the intestines, and pus in the peritoneal cavity. The daughter had not been in Mrs. L.'s family, except once on the morning of the 6th, and at the funeral. A domestic in the sister's family, who attended upon the daughter, had a severe attack also of peritonitis a few days later, and recovered slowly after repeated bleedings and other active treatment. In both these two cases there was great irritability of the stomach, with vomiting.

A grandmother of the first domestic came into Mrs. L.'s family on the 9th, and took charge of her until the 15th; when she was attacked with vomiting and diarrhœa, with pain and fever. She was a little better on the 17th, and sent home. She recovered after several days' illness, of the particulars of which Dr. H. had not been able to obtain any information.

Nov. 14, 1840. *Operation for Hydrocephalus—Death, and Examination.*—Dr. H. G. Clark reported the following case.

January 19th, 1839, he was called to see Mrs. H., in labor with her sixth child, of which, in the course of an hour, she was very comfortably delivered, the presentation being perfectly natural, and the head small and round. The child was a female, weighed 5½ pounds, and appeared quite healthy and plump. The fontanelles were more open perhaps than is the case sometimes, but not at all remarkably so. March 4th, he was called

to see the child. He found that it had nursed well till within a few days, but the mother thought that for three or four weeks the head had been growing too fast. It was wasted, so as to weigh less by a pound than at birth. The face was triangular from the emaciation, and increased size of the head. The forehead projecting—the eyes squinting and twitching, and the pupils contracted. There was constant vomiting, and the dejections were particolored and fœtid. The urine was scant. It continued in this state, little relieved by medicine, until the 11th, when it had severe convulsions.

It was now proposed to tap the head. On the 12th the head was measured, and found to be 18 inches in circumference, and 10 inches over the vertex. The bones of the cranium were widely spread, fluctuation was very distinct, and the head transparent when in a strong light. A puncture was made with a lancet between the occipital and parietal bones, a little to the left of the longitudinal sinus. Eight ounces of clear fluid escaped, tinged only with a little blood from the integuments. The child was a little faint, but rallied when the bandage was tightened and some camphor administered. At least four ounces more of fluid were lost on the pillow during the night. The next day the child was comfortable and had a good appetite. From this time it gained in flesh and strength, although the fluid was returning.

April 2d, three weeks having elapsed, the head measuring 17 inches in circumference, and 9½ on the vertex, was again punctured through the coronal suture, on the left side, and 16 ounces of fluid drawn off at intervals during the next 24 hours. The child was very much prostrated, owing perhaps to the cranial bones having increased so much faster than the brain, that adequate pressure could not be made with the bandage. It had slight convulsions also for 10 days, but became comfortable as soon as the fluid had accumulated in a small degree. The urine became free, and the child continued to improve in health and strength.

May 3d, five weeks from the last operation, the head was again tapped at the same place, and 10 ounces of fluid drawn off. Very little prostration followed. The child was comfortable, nursed well, and weighed 12½ pounds. After this the following was the course of the operations.

June 5th.	Coronal	suture	tapped	on left side,	8 oz.	drawn off.
July 5th.	"	"	"	right "	8 "	"
July 18th.	"	"	"	"	5 "	"
Sept. 18th.	"	"	"	"	6 "	"
Oct. 18th.	(weight 13 pounds)			"	8 "	"

The child now continued without any return of fluid till January, 1840, when it cut its incisor teeth. The fluid then began again to accumulate, and there were some slight spasms, affecting chiefly the eyes.

Feb. 12th. It was tapped in the left coronal suture, 14 oz. drawn off.
March 16th. " " " 11 " "
April 16th. " " " 8 " "

During the summer the water did not again collect. The rigidity of the limbs, particularly the upper extremities, which had existed from the commencement of the disease, continued. From the time that teething commenced the child had emaciated, and fallen off under the ordinary symptoms attending that process. About 10 days before death, acute symptoms of disease in the brain came on—loss of appetite, vomiting, suffusion of the eyes, strabismus, and frequent convulsions, under which it sunk, and died September 5th, 1840.

Autopsy, reported by Dr. C. E. Ware.—The anterior fontanelle was open and much wider than is common at birth. The sutures were united by very firm cartilage, but not by bone. The frontal bone overlapped by about one inch the parietal bones, and the parietal bones overlapped each other. The scalp was exceedingly thin, scarce thicker than paper in some parts. The entrance was made to the brain by cutting open the sutures. On dissecting up the scalp over the anterior fontanelle, the roof of the left ventricle was cut open, which consisted apparently of the membranes of the brain alone, glued together, and a large quantity of pure pus was discharged, several ounces at this time, and afterwards. When the parietal bones were forced apart, the appearance of the contents was that of a mass of reddish and yellowish lymph infiltrated with serum. It was adherent in every part to the cranium, but could be separated with the hand. It was impossible to make any dissection of it, or to distinguish any other than its most general characteristics. Its anatomical characteristics were almost entirely effaced. Over neither of the ventricles was there, so far as could be discovered, the least particle of cerebral substance. The parietes consisted merely of the membranes glued together, and covered with infiltrated lymph, the lymph being much thicker at the sides than over the roof of the ventricles. At some parts the lymph had formed sacs, which were filled with serum. The largest of them would contain half an ounce. On the sides of the hemispheres, towards the base, the cerebral substance began to appear, and at the base there was nearly as great an amount as is natural. It appeared like a homogeneous, semi-transparent gelatinous mass; the grey and white substance scarce to be distinguished. It was so blended with the lymph which surrounded it, that neither the surface nor the convolutions could be made out. In the right ventricle there were signs of recent inflammation. The lining membrane was thickened, at the posterior part to as much as two lines, and very firm, like cartilage. Its surface appeared like the mucous membrane of the large intestine in dysentery, rough, and spotted with extravasated blood. In the posterior part of this ventricle, and in the substance of the brain in other places, there was something which appeared like creta-

ceous matter scattered about in small masses or veins, which was rough to the touch, but did not grit under the knife. The septum between the ventricles was very thick and firm, like the other parietes. In the left ventricle the lining membrane presented the same diseased appearance as the right, but in a less degree. Both the ventricles were much larger than is natural, and were filled with pure pus.

The cerebellum retained its texture, but was very much softened and reduced in size.

The pons varolii was so softened down, that it could not distinctly be made out.

The spinal marrow, so far as could be seen at its upper part, was almost diffluent.

The nerves at the base of the brain could none of them be made out, on account of the difficulty of moving this part of the brain without tearing it to pieces. The base of the cranium was filled up with lymph.

Chest.—The chest was pigeon-breasted. The lungs and heart were perfectly healthy, and contained no tubercles.

The abdominal organs were all examined, and exhibited nothing unnatural. The mesenteric glands were not enlarged, indeed they were scarce of a size to be discovered.

Nov. 28, 1842. *Deep-seated Gangrenous Abscess of the right Iliac Fossa.*—Dr. George C. Shattuck, Jr. read the following case.

Miss E., æt. 21, chesnut hair, fair complexion, cellular and muscular systems sufficiently developed. Never robust, health generally not very good, but has never been confined to her bed by illness for more than two or three days at a time. In the month of June, 1842, she complained of pains in the back and right leg, said she did not feel well, without being able to define more particularly her symptoms. The catamenial periods in the previous three or four months had been irregular, the discharge much larger than at former periods. Monday evening, June 20th, without assignable cause, vomiting, diarrhœa, pain in abdomen, continuing for three or four following days, accompanied by febrile symptoms which did not subside as the others disappeared. The patient remained in bed, July 3d; at 2 P. M., a violent rigor lasting a half hour. At 6 P. M. she was lying on the right side, the right thigh flexed, being unable to lie on her back or on the left side. The pulse 132, small—the skin of a burning heat, the countenance flushed. Pain in the right iliac region, extending down the right thigh, not sharp or pungent, increased on motion of the limb, having been noticed for five or six days, at times more and at times less severe. In the right iliac region, and between the umbilicus and the anterior superior spinous process of the ileum, a deeply-seated tumor, to be defined with difficulty, hard, smooth, painful on pressure, not movea-

ble. Resonance of iliac region on percussion. Other parts of abdomen indolent, soft. All motion of the right inferior extremity painful. White coat on tongue, thirst intense, inappetence, no nausea or vomiting, six or seven small stools in last 24 hours after the administration of laxative medicine. Restlessness, two or three hours sleep the night previous, no cough, resonance of chest and respiration not remarkable. The treatment had been, one or two applications of leeches to the right iliac region, followed by hot opiate fomentations, blister.

July 4th, morning, having had an enema containing a drachm of laudanum the evening before, had slept more quietly during the night; pulse 106, skin moist. Through the day she took rice and lime-water, soda-water. Pulse at 7 P. M., 82, skin moist.

July 5th, at 4 A. M., chill and rigor for half an hour, followed by burning heat and sweat, tongue dry, thirst intense. Abdomen softer.

July 8th.—Having slept several hours in the night, she was seized at 5 A. M. with a severe, almost intolerable, pain in the right lumbar and iliac regions. At 9, after having taken a drachm of laudanum in divided doses, decubitus dorsal, complaining that to breathe was so difficult. The abdomen full, very tender on pressure in iliac and lumbar regions, pulse 120, small. The pain subsided, but the tenderness remained. The patient's condition did not vary materially in the following days. (The catamenia appeared at the usual period, and were as at the last periods.) Hot opiate fomentations were made to the seat of the pain, the bowels kept open by laxatives, cool and alkaline drinks.

July 12th.—The abdomen less full, less painful, occasional nausea and vomiting. Pain and tenderness on pressure in lumbar region, and to the right of the spine, extending up to the region of the liver. All motion very difficult. Dulness of lower right chest, with sub-crepitant rale.

July 18th.—Pulse 116, small. Tumor of iliac fossa indistinct, resonance in that region. Sloughs over right trochanter and sacrum.

July 22d.—For the first time since the commencement of her illness, she was able to lie on her left side. Dejections copious, not remarkable in appearance, but of a very fœtid odor. No pain on pressure over right iliac region. Urine of a deep red color, not coagulable on the application of heat, nor when treated by nitric acid.

July 26th.—Burning sensation in lower abdomen, and of right limb. Pulse 140, small. Complains chiefly of pain in the right lumbar region, and to the right of the spine, restlessness, intense thirst. Her strength failed rapidly in the following days.

August 1st.—Sleeplessness, delirium. She died August 11th, having appeared to be moribund for 24 hours.

Autopsy, Aug. 12th.—Emaciation considerable. On opening the abdominal cavity, the diaphragm was seen pushed up on a level with the fourth

rib. It formed the superior wall of a cavity which extended inferiorly to the periosteum of the ileum and to the tendon of the psoas magnus and iliacus internus muscles, the lower two thirds being behind the peritoneum, which had been dissected from its connections, and was lying so transversely from the lower edge of the liver, as at first sight to be mistaken for the diaphragm. This cavity was filled with a black gangrenous fluid, in which was floating a piece of cellular tissue of the size of a large walnut. This fluid had not extended beyond a circumscribed portion of the peritoneal cavity, but on the posterior surface of the colon with which it came in contact, were several small ulcerations which penetrated to the mucous membrane. This was torn at the slightest pressure, but no perforation appeared actually to have occurred during life. The peritoneum of the cavity was stained of a blackish color in spots, in others reddish with flakes of coagulable lymph.

The liver where in contact with this same fluid was compressed, of a slate color in spots. The right kidney presented a similar appearance, but in other respects the two organs did not appear to be diseased. The psoas, iliacus internus, and qaudratus lumborum muscles were softened, black, and partially in a gangrenous condition. The uterus and ovaries presented nothing remarkable. The mucous membrane of the alimentary canal, of the usual color and thickness. The cavity of the right pleura much diminished, containing about three ounces of serum. Some œdema of lungs. The heart and pericardium not remarkable.

Abscess of the iliac fossa is not a very infrequent disease. Several monographs on it have been published, and in one of them the results are taken from 73 cases. Still, the above history contains some peculiarities, and is not without interest. The disease commenced insidiously, and without any assignable cause. When the patient first came under observation, the symptoms were sufficiently marked to establish the diagnosis. The period of suppuration was announced by rigors and febrile paroxysms. The tumor was so deep-seated, and there was so much meteorism, that fluctuation was not detected. Œdema of the integuments, which is found at this period in many cases, was not present. It was in the fourth week of the disease that these symptoms manifested themselves. It is well known that suppuration is established more slowly in these cellular inflammations than in those of the other parts of the body. The time assigned for it by Grisolle, is from the 20th to the 24th day. The pus appears to have been confined to its original seat only for four or five days. The symptoms above referred to were noted on the 3d of July. On the 8th, the patient was suddenly seized with severe pain in the right lumbar and hypochondriac regions, and from that time the local symptoms were transferred into these regions from the iliac, and the patient could vary her position and move the right limb without pain. At this time the diagnosis presented some difficulty. And in the books which I have been able to

consult, I find no similar case. The pus has been effused in several cases into the general cavity of the peritoneum. More frequently it has taken its course outside of the cavity. In two thirds of the cases examined by Grisolle, the abscess opened somewhere in the abdominal walls, near the ligament of Fallopius and the superior anterior process of the ileum. In other cases it has discharged itself from an opening in the gluteal region or near the great trochanter. These cases where the opening is made externally, are found by Grisolle not to be more severe or fatal in a larger proportion than those in which the abscess discharges itself into the intestine. Dupuytren, however, had expressed a contrary opinion. M. Berard has reported a remarkable case where he found a large abscess on the left side between the colon and the abdominal walls, extending into the hypogastric region, thence upward to the umbilicus, near which was the opening through the skin. There the peritoneal cavity was not invaded, and in this respect the case comports with the one under consideration, where the partial peritonitis added so much to the sufferings of the patient, as well as contributed to the fatal termination.

CORRECTION.

GENTLEMEN:

On the 254th page of the last number of your Journal, is a case of "Enlarged Prostate," extracted from the "Reports of the Boston Society for Medical Improvement," in which it is stated that the patient "was attended by Dr. Homans, who at first relieved him, but on the third day failed to introduce the catheter. Dr. Hayward was called in, who succeeded in drawing off his water. The day after, however, *he failed*, and Dr. Warren saw him." Dr. Hayward did *not fail* to introduce the catheter, and saw the patient only once, the day on which he introduced the instrument. This error, although doubtless accidental, I have taken the liberty to suggest to you.

With much esteem,

I am very truly, your obed't serv't,

JOHN HOMANS.

Extracts from Foreign and American Journals.

ANATOMY AND PHYSIOLOGY.

The Functions of the Epiglottis in the Acts of Deglutition, Vomiting and Rumination.—M. Longet, already favorably known for experiments on the nervous system, arrives, from a series of experimental and pathological facts, at the following conclusions on the functions of the epiglottis.

1. The epiglottis is necessary to the *integrity* of the deglutition, since even if animals and man can swallow solids when deprived of it, in the case of liquids it is different: the lid, as it were, is indispensable to direct the drops of liquid which after deglutition flow down the inclined plane formed by the base of the tongue and prevent their falling into the space above the glottis.

2. The complete excision of the epiglottis does not appreciably modify the voice.

3. In the second period of the act of deglutition, in vomiting and rumination, the occlusion of the glottis takes place *after the paralysis of all the nerves proper to the larynx*, by the aid of the pharyngeal constrictors; hence it results that the movements of the glottis accompanying deglutition, &c. are combated by other muscular agents than those acting during the production of the vocal and respiratory acts.

4. The ascension anteriorly of the larynx and the displacement posteriorly of the base of the tongue, are conditions essential to the protection of the aerial passages.

5. On the contrary, the occlusion of the glottis is not necessary for the regulating of deglutition, since in animals the separation of its lips by a pair of forceps, or in the human subject its deep ulcerations, do not prevent its normal action: nevertheless the glottis being shut, presents an obstacle to the passage of solids and liquids into the trachea, when by accident they have been introduced into the space above the glottis.

This accidental introduction taking place, the irritation of the mucous membrane, accustomed only to the contact of the air, gives rise to a convulsive and *expulsive* cough: but if the sensibility of the mucous membrane be destroyed by the section of the laryngeal nerves, the animal, not advertised in time, instead of an expiration, draws by an inspiration the foreign body directly into the trachea.

7. In vomiting, the occlusion of the glottis is necessary to prevent the fall of the matter vomited into the trachea.

8. In rumination, the glottis closes, but in addition the aryteno-epiglottidean muscles, strongly developed in the ruminants, appear to act as additional constrictors of the larynx, and prevent the passage into this organ of the cud as it ascends.—*Arch. Gen. de Médecine.*

The Evolution of Light from the Living Human Subject. By Sir Henry Marsh, Bart., M.D., President of the King and Queen's College of Physicians, Dublin, &c. &c. &c. Pp. 59. W. Curry & Co. Dublin, 1842.—The substance of this brochure was read before the College in Dublin, some four years ago, and an abstract of it published in the proceedings of that body. In the present publication Sir Henry has embodied a great deal of research and communications respecting the subject of animal luminescence, (if we may use such an expression), as well as that from various inorganic substances. By using the term *phosphorescence*, our author does not pledge himself to prove or even suppose an identity between phosphorus and the luminescence in question.

Sir Henry has collected a great many curious examples of this luminous phenomenon. It has been seen playing in lambent corruscations on the masts and yards of ships, or rendering the ocean a sea of liquid fire. Dr. Lynch, of Galway, witnessed a remarkable instance of this phosphorescence, while travelling by night over an extensive peat-bog in Ireland. Cones of intense fire rose in all directions around him, varying from six to thirty feet in diameter, at their base, and rising to thirty feet, more or less, in height. A heavy rain came on, and dispersed these astounding nocturnal fellow-travellers into air—thin air.

The phosphorescence of fishes, when in a state of decomposition, is well known. It ceases when the putrefaction is complete. Equally familiar is the radiation of light from rotten wood, giving rise to strange stories among the young as well as the old inhabitants of rural districts. The luminous exhalations that occasionally rise from burial-grounds, produce still more terror, and have even been pressed into the service of the muse.

"Thy midnight cup is pledged to slaves,
No genial ties enwreath it,
The smiling brow, like light on graves,
Has rank cold hearts beneath it." *Moore.*

Living vegetables, as well as living animals, sometimes exhibit this luminescence. Thus several species of the lichens give to damp cellars and mines a curious and brilliant appearance. But it is in the ocean, especially in tropical climates, that the most magnificent scenes of marine phosphorescence are witnessed. Sometimes the surface of the sea exhibits a diffused sheet of light—but most commonly the waves sparkle with intermitting and often vivid scintillations; while the track, or wake of the ship presents a long and illuminated VIA LACTEA, as far as the eye can reach. The smooth and placid waters of the Mediterranean often present these luminescences as the boats cut their way through the deep, or the oars plunge into the glassy surface.

"Flash'd the dipt oar, and sparkling with the stroke,
Around the waves phosphoric brightness broke." *Byron.*

But we must leave the immense mass of facts collected by our author on this subject, in order to come at once to the phenomena that gave rise to Sir Henry's paper originally.

About ten days before the death of a lady, the narrator observed an extraordinary light darting about her face and head, flashing like an aurora borealis. She was in the last stage of consumption, and had had that day an attack of suffocation which lasted for an hour, and left her very nervous. The narrator watched this luminous phenomenon for some time, when it

disappeared. It gave the face an appearance as though it had been painted white and highly glazed. But the light danced about in a very strange manner. Three nights afterwards the narrator sat up again with the young lady, and again observed the luminescence, although there was no candle in the room, nor any moonlight. The patient's sister came into the room and observed it also. It was again seen the night before death took place, but the light was fainter. Her breath had a peculiar smell, which led the observer to think that decomposition was going on.

Sir H. avers that the narrator was a man of clear head, superior observation, and free from superstition. The next instance fell under our author's own observation. A young lady was in the last stage of phthisis, like the other, and had read some account of the phenomenon. She was much interested on the topic, and often conversed with Sir Henry about it. About an hour and a half before her death, her sister and some other friends were "struck by a luminous appearance proceeding from her head in a diagonal direction." She was semi-recumbent and tranquil. "The light was pale as the moon." At first it was thought to be lightning, but this was given over. As the light played around the head of the bed, candles were brought in lest the dying person should observe it. This case is not so satisfactory as the first.

The third instance was in that of a man who died of lingering disease in the South of Ireland. "All the witnesses agree in having seen the light; but many of them came to the conclusion that it was caused by supernatural agency." Dr. Donovan, however, visited the cabin where the man lived for 14 nights, and "on three nights only did he witness anything unusual." Once he perceived a kind of luminous fog—and twice he saw scintillations like the sparkling phosphorescence of the marine infusoria. He seems certain that there was no imposition. The luminescence in question was not seen on the man's person, but over the head of his bed, on a wall composed of clay and mortar. The luminous fogs appeared to pass in streams through the apartment.

We have only space to allude to one more instance, observed by Dr. W. Stokes. There was a poor woman in the Meath Hospital, laboring under enormous cancer of the breast, from all parts of the ulcerated surface of which, a quantity of luminous fluid constantly distilled. The poor woman remarked that the sore was on fire every night. The light was visible to Dr. Stokes at the distance of 20 feet.

For many ingenious speculations and rational explanations of this curious phenomenon, we must refer to the paper itself, which is clearly an emanation from a classical scholar, experienced physician, and enlightened philosopher.—*Med. Chirurg. Review.*

On the Structure of Intestinal Villi in Man and certain of the Mammalia, with some observations on Digestion and the Absorption of Chyle. By John Goodsir.—Having fed a dog with oatmeal, milk, and butter, the author examined the intestinal villi three hours afterwards, when the lacteals were turgid with chyle, and the gut full of milky chyme mingled with a bilious-looking fluid. In the white portion of the fluid, which was situated principally towards the mucous membrane, numerous epithelium cells were found; some of which had evidently (from their form) been detached from the surface of the villi, whilst others had been thrown off from the interior of the follicles of Lieberkuhn. The villi were turgid, and des-

titute of epithelium except around their bases. Each villus was covered by a very fine smooth membrane, continuous with what Mr. Bowman terms the basement membrane of the mucous surface, which is reflected into the follicles. The villi were semi-transparent, except at their free or bulbous extremities, where they were white and nearly opaque. The summit of each villus was crowded, beneath the enveloping membrane, with a number of perfectly spherical vesicles, varying in size from 1-1000th to 1-2000th of an inch; the matter in the interior of which had an opalescent milky appearance. At the part where these vesicles approached the granular texture of the substance of the villus, minute granular or oily particles were situated in great numbers. The trunks of two lacteals could be easily traced up the centre of the villus; and as they approached the vesicular mass, they subdivided and looped; but in no instance could they be seen to communicate directly with any of the vesicles.

These vesicles can scarcely be considered in any other light than as cells, whose lives have but a very brief duration, selecting from and appropriating the materials in contact with the surface of the villi into their own substance, and then liberating these, by solution or disruption of the cell-wall, in a situation where they can be absorbed by the lacteals. When the gut contains no more chyme, the development of new vesicles ceases, the lacteals empty themselves, and the villi become flaccid. During this interval of repose, the epithelium is renewed, for the protection of the surface of the villi, and for the secreting function of the follicles of Lieberkuhn. It is considered by Mr. Goodsir that the epithelium-cells have their origin in certain nuclei which he detects scattered through the basement membrane.

There appears to be a strong resemblance between the process of absorption in animals, as thus explained, and that which also takes place in plants through the medium of the spongiole.—*Br. and For. Review, from Edin. New Phil. Journal, July*, 1842.

On the Structure and Use of the Malpighian Bodies of the Kidney, with Observations on the Circulation through that Body. By William Bowman, F.R.S., Demonstrator of Anatomy in King's College, London.—[The Malpighian bodies have excited much interest amongst anatomists, from the time of their first discovery; but no satisfactory account has yet been given of their structure and vascular connexions. Still less has their true relation with the uriniferous tubes been ascertained; in fact, Muller and Huschke, two of the latest inquirers on the subject, have positively denied the existence of any such relation. The following is the account of Mr. Bowman's researches given in the Proceedings of the Royal Society.]

"The author describes the results of his examination of the structure and connexions of the Malpighian bodies of the kidney in different tribes of vertebrata, and shows that they consist essentially of a small mass of vessels contained within dilated extremities of the convoluted uriniferous tubes. The tubes themselves consist of an outer transparent membrane (termed by the author the *basement membrane*) lined by epithelium. This basement membrane, where it is expanded over the tuft of vessels, constitutes the capsule described by Muller. The epithelium lining the uriniferous tube is altered in its character where the tube is continuous with the capsule, being there more transparent, and furnished with cilia, which, in the frog, may be seen, for many hours after death, in very active motion, directing a current down the tube. Farther within the capsule the epithelium is ex-

cessively delicate, and even in many cases absent. The renal artery, with the exception of a few branches given off to the capsule, surrounding fat and coats of the larger blood-vessels, divides itself into minute twigs, which are, the afferent vessels of the Malpighian tufts. After it has pierced the capsule, the twig dilates, and suddenly divides and subdivides itself into several minute branches, terminating in convoluted capillaries, which are collected in the form of a ball; and from the interior of the ball the solitary efferent vessel emerges, passing out of the capsule by the side of the single afferent vessel. This ball lies loose and bare in the capsule, being attached to it only by its afferent and efferent vessel, and is divided into as many lobes as there are primary subdivisions of the afferent vessel; and every vessel composing it is bare and uncovered, an arrangement of which the economy presents no other example. The efferent vessels, on leaving the Malpighian bodies, enter separately the plexus of capillaries surrounding the uriniferous tubes, and supply that plexus with blood. The blood of the vasa vasorum also probably enters this plexus. The plexus itself lies on the outside of the tubes, on the deep surface of the membrane which furnishes the secretion; and from it the renal vein arises by numerous radicles.

Thus the blood, in its course through the kidney, passes through two distinct systems of capillary vessels; first, through that within the extremities of the uriniferous tubes, and secondly, through that on the exterior of these tubes. The author points out striking differences between these two systems. He also describes collectively, under the name of *Portal System of the Kidney*, all the solitary efferent vessels of the Malpighian bodies, and compares them with the portal system of the liver, both serving to convey blood between two capillary systems. In the latter a trunk is formed merely for the convenience of transport, the two systems it connects being far apart. But a portion even of this has no venous trunk, viz. that furnished by the capillaries of the hepatic artery throughout the liver, which pour themselves either into the terminal branches of the portal vein, or else directly into the portal-hepatic capillary plexus. On the other hand, in the kidney, the efferent vessels of the Malpighian bodies, situated near the medullary cones, having to supply the plexus of the cones, which is at some little distance, are often large, and divide themselves after the manner of an artery. They are portal veins in miniature. In further confirmation of his view of the existence of a true portal system in the kidney of the higher order of animals, where it has hitherto never been suspected, the author describes his observations on the circulation through the kidney of the boa constrictor, an animal which affords a good example of those in which portal blood derived from the hinder part of the body traverses the kidney. He shows that here the Malpighian bodies are supplied, as elsewhere, by the artery, and that their efferent vessels are radicles of the vena portæ within the organ, and join its branches as they are dividing to form the plexus surrounding the tubes; thus corresponding with the hepatic origin of the great vena portæ. In other words, the vena portæ is an appendage to the efferent vessels of the Malpighian bodies, and aids them in supplying blood to the plexus of the tubes. Thus in this variety of the kidney, as in the liver, there is an internal as well as an external origin of the portal system; while in the kidney of the higher animals, this system has only an internal or renal origin, viz. that from the Malpighian bodies.

A detail of the results of injection by the arteries, veins, and ducts, is

then given, and they are shown to accord with the preceding description. Many varieties in the Malpighian bodies in different animals are also pointed out, especially as regards their size.

The author then proceeds to found on his previous observations, and on other grounds, a theory of a double function of the kidney. He conceives that the aqueous portion of the secretion is furnished by the Malpighian bodies, and its characteristic proximate principles by the walls of the tubes. After giving in detail his reasons for entertaining this view, he concludes by referring to the striking analogy between the liver and kidney both in structure and function, and by expressing his belief, first, that diuretic medicines act specially on the Malpighian bodies, and that many substances, especially salts, which when taken into the system have a tendency to pass off by the kidneys with rapidity, in reality escape through the Malpighian bodies; secondly, that certain morbid products occasionally found in the urine, such as sugar, albumen, and the red particles of the blood, also, in all probability, pass off through this bare system of capillaries."—*Br. and For. Rev., from Proceedings of the Royal Soc.* No. lii. *Feb.* 3, '42.

Chemical Characters of the Spermatozoa, Molecules of the Semen.—In a paper read at the Zoological Society, July 26, 1842, Mr. Gulliver stated that, in his experiments, the spermatozoa of mammalia were but little, or not at all, affected by nitric, muriatic, acetic, oxalic, tartaric, and citric acids; while the *spiral* spermatozoa of birds were very susceptible of the action of the vegetable acids, although the *cylindrical* spermatozoa of birds were nearly allied to those of mammalia in chemical characters; and that the chemical characters of the spermatozoa of man might probably be turned to account in medical jurisprudence.

The molecules of the semen he thinks may be connected with the perfecting of the semen, as they are to be found in small numbers at all times in that of healthy men, and in great abundance in that of birds and reptiles just before the testicles become ripe, and disappear or become scanty when the spermatozoa are completely formed. The molecules were described as resembling, in form and chemical characters, the minute particles which he has figured (Gerber's Anatomy), in the juice of the supra-renal glands. —*British and For. Med. Review.*

Pathology of the Tissues. By Dr. Joseph Engel.—1. An osteophysis, or formation of bone on the inner surface of the skull, in the case of pregnant women, is a frequent occurrence in Austria. It has hence been inferred that there is a certain relation between pregnancy and this species of osteous growth; although against the supposition that there is any such necessary connexion militates the fact that in England this growth has never been observed in pregnant women, and that it has been noticed in women who were never pregnant, and also in men.

The first appreciable phenomenon in this peculiar morbid process is the appearance of a gelatinous, yellowish-red exudation on the outer surface of the dura mater, without any apparent actual implication of that membrane. This exudation, examined by the microscope, exhibits cells containing nuclei, which become united by an amorphous, gluey substance, and extend themselves on one or on both sides by fibre-like prolongations. The nucleus of the cell is tolerably large, and is sometimes surrounded by a capsule. The dura mater becomes adherent, in consequence of this exu-

dation, to the corresponding part of the cranial bone; and from this point dates the deposition of earthy salts, which is effected by the same process by which, in cases of fracture, the formation of bone takes place from the deposition of callus. The phenomena are analogous to those which take place in periostitis, in which exudation from the bone amalgamates with phosphate of lime, resulting in osteophysis.

The frequency of this morbid affection and the circumstance of its occurring in advanced life, are additional grounds for regarding it as having no necessary connexion with the pregnant state. Rarely does this disease manifest itself, during life, by any symptoms.

2. *Proneness of articular cartilage to suppuration.* The author illustrates this proposition by the case of a phthisical subject in whom the knee-joint exhibited all the appearances of chronic inflammation. The synovial membrane was connected with the subjacent fat by a glairy, yellow exudation, and was thickened though not injected; the cavity of the capsule was filled with healthy pus, a thin layer of which attached itself to the surface of the capsule; the semilunar cartilages were entire; the crucial ligaments were friable; the cartilaginous extremities of the femur and tibia were very thin, sharp, and their edges easily separable from the subjacent bone, and divisible into three layers. The brittleness of these "pathological cartilages" was remarkable. They were easily pressed, under the microscope, into an homogeneous, granular mass.

3. *The mode of cicatrization of typhus ulcers.* After the ulcerative process is at an end, and the so-called typhus ulcer appears clean, its bottom, situated in the cellular or muscular tissue, appears, when viewed under an oblique light, covered with an exceedingly fine and remarkable cuticle. This begins from the abrupt margin of the usually slate-gray-colored ulcer, and runs towards the centre of the ulcer, but does not entirely reach or cover this point. The membranous expansion which extends over the rest of the ulcer, is partly of a cellular, partly of a fibrous character, separate or mixed. The cells are round or elliptical, and seem to form fibres by mutual approximation of their homologous sides and the subsequent absorption of the walls of the cells where these are in contact with each other. In other cases fibrous bundles are observable, which appear to be prolongations from a single cell. The author's observations do not permit him to say positively whether this last species of fibrous formation is the origin of submucous cellular tissue, the former of the mucous membrane itself.

4. *Morbid deposits on the serous membranes in cases of protracted diarrhœa.* Every anatomist knows that viscid, thin, colorless exudation which appears as a layer on the free surface of the great serous membranes, in cases of exhausting diarrhœa. In children, more especially, this exudation is not a rare occurrence, and in the most of this class of cases is limited to the pulmonary pleura. The false membrane is easily obtained by stripping it off, though seldom in such purity and quantity as to allow an analysis to be made of it. Examined with the microscope, it appears an amorphous, gluey mass, amid which are discernible numerous round cells, one or both of the sides of which are prolonged into threads; the cells seem two or three times larger than blood-corpuscles, and appear filled with many pigmentous nucleoli. In many there was discernible a pale, round granule or nucleus, about the size of a blood-corpuscle; and this nucleus seemed sometimes made up of many granules. The ultimate constitution

of this false membrane is consequently not easily determined.—*Br. and For. Med. Review, from Oest. Med. Wochenschrift*, No. iii. *Jan.* 1842.

M. Dumas on the Chemistry of Organized Beings.—It appears that MM. Dumas and Boussingault, in France, have been following out nearly the same pursuits in Organic Chemistry, as Professor Liebig has been doing in Germany. It is immaterial to us to whom the priority belongs; the important point for science is, that these gentlemen have arrived at very similar conclusions.

From a recently published memoir of M. Dumas, we shall select a few passages that bear more immediately on the physiology of plants and animals.

"We have," says he, "considered *plants* as constituting an immense reducing or decomposing apparatus, that is nourished by carbon, hydrogen, and nitrogen—derived from the decomposition of carbonic acid, water, and oxide of ammonium—and *animals* as forming a large consuming apparatus, in which there is constantly going on the combustion of these elements, carbon, hydrogen, and ammonium, to form these very compounds.

We have laid it down as a recognized principle that plants form, or prepare, from mineral substances the organic materials of their composition, that these materials are taken into the bodies of animals, are there subjected to the process of digestion, thus become animalized, and are subsequently again brought back by a vital process to the state of mineral and inorganized matter.

As accessory results of our researches, we may state that some plants absorb a certain portion of nitrogen from the atmosphere, while others do not; that animal heat is owing solely to respiration; that the chemical process of this function (respiration) takes place not in the lungs but in the capillary vessels of the whole body; that digestion effects two important results, viz. the assimilation of azotised matters, and the restitution of combustible matters to the blood."

M. Dumas then discusses at considerable length the striking effects of ammonia in promoting vegetation; this seems to be the potent agent in most manures. Hence whatever tends to assist the formation of this substance, or to render it more fixed and abiding, is found to increase the valuable properties of manures. The addition of a solution of sulphate of iron, or of weak sulphuric acid, has this effect, and has been found to add greatly to the fertilizing properties of these matters. A sulphate of ammonia is formed, and remains fixed; the salt being not volatile like its alkaline basis.

With respect to the much vexed question, as to the source of animal heat, it seems to be the opinion of M. Dumas, that during each act of respiration a certain portion of oxygen is absorbed directly into the blood, and a certain portion of carbonic acid—already formed and existing in the blood—displaced and evolved. There is no direct union or combustion, so to speak, of hydrogen or carbon with oxygen in the lungs, as imagined by Lavoisier and Laplace: the formation of the carbonic acid seems to be a slow and successive act that is constantly going on in the minute blood-vessels; and the venous blood, when it reaches the right side of the heart, is already charged with it, and ready to give it off when exposed to the air in the cells of the lungs.

It is necessary to keep in mind that the production of animal heat, the

exhalation of carbonic acid into, and the disappearance of oxygen from, the respired air are three separate phenomena—connected, indeed, the one with the other, but not implying that they are of simultaneous occurrence. Or we may express our meaning in different words, thus: the generation of animal heat, the decarbonization, and the subsequent arterialization, of the blood, are three mutually-associated, but not coincident, phenomena. The blood becomes arterialized without any necessary production of heat at the time: and the gradual formation of carbonic acid—an act which is necessarily attended with the evolution of caloric—is going on in every capillary vessel throughout the body.

"Respiration," says our author, "introduces oxygen into the blood and renders it of a bright red color; carbonic acid is at the same time expelled from it.

L'oxygene absorbé sert à bruler du lactate de soude, et en general des sels de soude. L'acide lactique transforme celui-ci en lactate et degage acide carbonique. Cet acide lactique provient des alimens sucrés ou amylacés."

* * * * * * *

"The fatty matters also form salts with the soda of the blood. When they are in excess, they become deposited around the vessels through which they have exuded, and, by being blended with the albuminous fluids in a state of repose, they serve for the production of adipose cellules or vesicles, and the animal becomes fat—in other words, it lays up a supply of combustible matter. When the organized materials of the blood are consumed (brulées) without being replaced, the vital fluid becomes more decidedly alkaline and begins to react upon the adipose vesicles which surround the vessels; the fat and albumen of the cellules is re-dissolved and absorbed by the blood, and the animal becomes emaciated—in other words, it consumes the combustible matter which had been stored up at a former time."

M. Dumas closes his remarks on this subject by pointing out the difference in the various kinds of food, according to their mode of action on the system and the changes they undergo during digestion and assimilation. He arranges them in three classes:—

1. Aliments of assimilation—viz. fibrine, albumen, and caseum: these are all of a highly azotised nature.

2. Soluble non-azotised aliments of respiration: such as starch, sugar, acid or acidifiable substances, &c., which at once undergo combustion in presence of the soda in the blood; hence the production of heat manifested from the very commencement of their digestion.

3. Aliments of respiration, insoluble and therefore capable of being stored up in the body, viz. various kinds of fatty matter."—*Annales de Chimie.*

We may here insert a paragraph or two from M. Liebig's lecture on the different kinds of food.

"Another most interesting result of M. Liebig's researches is that vegetable albumen, fibrine and caseine not only have the same properties as the corresponding elements derived from animal matters, but also exhibit their azote and carbon in the same relations to each other. Thus chemical analysis shows us that herbivorous animals find the constituent materials of their blood, their albumen and their fibrine, already prepared in plants; and that the juice of plants, the vegetable albumen, the farina of wheat, and of other *cerealia*, contain the principle of muscular fibre, while lentiles, peas and beans, contain the same azotised substance, that is pre-

sent in milk. They (herbivorous animals) live upon the flesh, blood, and cheese supplied them by plants; while, on the other hand, their flesh and blood serve for food to the carnivorous tribe. There is thus a complete identity between the azotised principles existing in vegetables and those in animal substances. Their chemical properties are alike; for we find vegetable albumen, obtained by boiling the juice of plants, and freed from all fatty and coloring matter by means of ether and alcohol, can scarcely be distinguished from the white of eggs."—*Med. Chir. Review, from Algemeine Zeitung.*

PATHOLOGY, PRACTICAL MEDICINE AND THERAPEUTICS.

On the Difference between true Typhus and Typhus Abdominalis, and on the latter affection in Children. By Professor SEIDLITZ, of St. Petersburg.—Great confusion has arisen from the application of the word typhus to diseases essentially distinct and differing from each other, as typhus abdominalis and true typhus—typhus sanguineus.

The difference between the two diseases may be summed up somewhat in the following manner:

Typhus sanguineus is characterized by a short stage of premonitory symptoms; the rapid development and increase of the disease, marked by some striking though temporary symptom, as shivering; pain in the head; vomiting; extraordinary loss of strength. There is violent disturbance of the circulatory system; the blood is black, altered in character; and a great tendency exists to congestion of the brain, liver, and intestines, constituting hypostatic inflammations or apoplexies of those organs. The skin becomes burning hot, and an eruption of an erysipelatous character appears in large patches over the whole body. The urine is in moderate quantity, turbid, and loaded with crystalline deposits. The disease is contagious; it observes in its course a distinct septemeral type; and critical evacuations precede its termination.

Typhus abdominalis is characterized by long previous indisposition, gradual development and slow progress of the disease, with especial disturbance of the digestive powers. Excitement of the circulatory system does not come on till afterwards; and the blood, which is almost normal in character, does not become concentrated about the parenchymatous organs, but a tendency exists to serous effusion. Cerebral affections occur at a later period, and are evidently secondary. There is no disagreeable heat of skin, but rather a diminution of temperature; petechiæ are scattered about the lower part of the abdomen; and miliary eruptions appear towards the end of the disease. The urine is straw-colored, and, at the end of the attack, deposits a sediment which resembles spiders' web. The disease is not contagious. Its course is very uncertain: it exceeds four weeks, and sometimes continues for six months. Sleep and a constipated state of the bowels announce its termination.

At different ages the symptoms of abdominal typhus vary considerably. One form which has usually not been referred to this head, is that nervous

fever which occurs in children between their sixth and their eighth year. Its precursory symptoms, which consist in irregular appetite, a variable state of the bowels, occasional attacks of fever, marked emaciation, dryness and harshness of the skin, unquiet sleep, and pettishness in the child's manner, often continue for several weeks and then disappear completely during the heats of summer, or, if they made their appearance in autumn, on the cold of winter setting in. Sometimes with the return of spring or autumn these symptoms recur, though less severely; and each year they reappear with diminished severity, till at last they cease entirely. At other times, however, under the influence of errors in diet or of moral causes—as the wearisomeness of a child's tasks at a boarding-school—the appetite is entirely lost, the evacuations become liquid, the skin grows drier, the pulse more hurried, and eventually the disease appears in its severer form. The febrile character of the affection becomes more marked, the skin of the body and the head are burning hot, the thirst is urgent, and slight delirium comes on. The patients now remain in bed without expressing any desire to get up, and soon they begin to pass their evacuations involuntarily. The dejections are liquid, of a yellowish brown color, and offensive smell. The abdomen is tympanitic, slightly painful; the skin of the abdomen and of the whole body, with the exception of the feet, is hot; the lips and tongue are dry, but nevertheless the patients do not ask for drink, though they swallow anything that is given them. They lie for hours together in the same position, altogether unconscious, and, to all appearance, in a deep sleep. After three, four, or five days, consciousness seems to return, but the little patients seem unable to utter a word or even to protrude their tongue; they lie with their eyes closed, but sleepless; their senses being either weakened or else preternaturally acute. At the end of ten or twelve days there is some slight return of appetite; the tongue, which at no time is thickly coated, becomes moister, and the skin of the lips peels off; but before the end of the third week, no critical evacuation takes place, no deposit is thrown down from the urine, no moisture breaks out on the skin. About the beginning of the fourth week, however, perspiration appears about the neck, chest and abdomen; but after two or three days it ceases and leaves the skin harsher than ever. But now frequent crops of miliary vesicles show themselves, after some hours of restlessness and febrile disturbance; but in the intervals of these attacks the sleep is sound and tranquil. The tongue becomes perfectly clean, very red, broad, and flabby; the thirst ceases, but the patients are troubled by hunger, so importunate that they ask for food every half hour. In about the fifth or sixth week the skin once more becomes perspirable, desquamation of the epidermis takes place, and the hair falls off. The children, though worn to skeletons, may now be regarded as convalescent, but they are still unable to walk; and three, four, or even six months are requisite for their perfect cure, while they are very liable to relapse, from errors in diet, or from neglect of the condition of the bowels.

The treatment adopted by Professor Seidlitz is the following: At the commencement of the disease, when premonitory symptoms only exist, he gives very small doses of hydrochloric acid, with ether, or Hoffman's anodyne, or else a mixture of *eau de chlore*, in some aromatic infusion. He orders warm baths twice a week, directs the body to be well rubbed with castor oil every day, insists on a very abstemious diet, and gives the patient pure water for drink. The slight diarrhœa which may exist is not

to be suppressed, but small doses of castor oil may be given, under the use of which the evacuations gradually become more consistent. If in the course of the disease the evacuations become flocculent and more frequent, an emulsion of olive or poppy oil may be given, and sinapisms may be applied to the hypogastric region or to the feet. If the abdomen become hot and tympanitic, half a drachm of strong mercurial ointment may be rubbed into the hypogastric region twice a day, until the symptoms decline, when recourse may again be had to the acid or chlorine; or, afterwards, to an infusion of the flowers of the *salmiac ferrugineux*. The occurrence of delirium must be met by the application of one or two leeches to the mastoid process, so as to keep up a slight draining of blood for twelve or eighteen hours, and ice must be almost constantly applied to the head till conciousness returns. At the same time, half grain or grain doses of calomel must be given till they produce green evacuations, when that remedy must be suspended, and the acetate of lead, in quarter-grain doses, may be given three our four times a day, either alone or in combination with musk, in rather large doses, so long as the tympany and liquid stools continue; and, during the same time, mercurial inunctions may be employed every two hours. A small blister may now be applied to the epigastrium, and should, after an hour and a half or two hours, be removed to another part, so as to produce a slight counter-irritation of the skin of the abdomen. After ten or twelve days more the acetate of lead may be discontinued, a camphorated julep may be given instead, and a little Dover's powder may be administered, and a warm bath employed by way of preparing the skin for the future crisis. As soon as the miliary eruption appears all medicine may be discontinued, in the great majority of cases; but the convalescence, usually tardy, is always expedited by removal to a purer air, or by mere change of dwelling.—*Abstracted from Prof. Seidlitz's Clinique Médicale.*

On the Treatment of Hemorrhagic Diathesis.—In almost all cases the blood which escapes from the incised or lacerated surface is preternaturally fluid. A deficiency of fibrin certainly exists, and this deficiency continues to augment in proportion as the bleeding continues. The number of the blood-corpuscles seems also to diminish. The coagulable power of that fluid is seriously impaired, and if a clot at all forms at the orifices of the torn or incised capillaries, it is loose, spongy, and easily detached; while a fresh clot is formed with more and more difficulty, if at all. Increased density of coagulum (which is what we want) is well known to depend on increase of the proportion of fibrin in the coagulating blood, as occurs in the inflammatory diathesis. But the proportion of fibrin is not to be here estimated in regard to the general mass of the blood merely, but rather in regard to the blood-globules; it being only when excessive in proportion to these, that the tendency to, and power of coagulation becomes most marked. Mere loss of blood produces a deficiency both of fibrin and globules, but not in an equal ratio. At first the latter are chiefly removed, and, consequently, at an early period of the case, loss of blood favors natural hæmoptysis, by increasing the proportion of fibrin to globules, and thereby augmenting the tendency to, and power of coagulation.

But the blood is not alone to blame. The capillaries and arterial tubes are deficient in contractility. In treating the disease, therefore, we must (as in the scrofulous diathesis, to which the hemorrhage bears a considerable resemblance,) prescribe a diet nutritious without being stimulating.

Although the rapidity of many cases of hemorrhage preclude the possibility of any material benefit being derived from dietetic means, yet, seeing these are rationally indicated, it behoves us to avail ourselves of them.

The other means recommended by the author are acetate of lead and opium, given in heroic doses, and, if these disagree with the patient, sulphate of alum and potass, in doses of 15 or 20 grs.—nauseating remedies—and the sulphate of soda, which last he considers useful, by procuring serous discharges from the bowels, and thereby disposing the blood to "solid coagulation."

In regard to the relaxed condition of the capillaries, the author is of opinion that the acetate of lead will help to remove that state, while opium will calm the heart's action and the general circulation.

He is quite opposed to the actual cautery; and, as respects local treatment, would mainly rely on *pressure*, the bleeding part being first lightly touched with nitrate of silver. And, as "last, not least," in his list of remedies, he recommends *transfusion*, on the plain ground of the possibility of replacing, by this means, blood "lamentably deficient in both globules and fibrin," with blood sufficiently abounding in both.—James Miller, Esq., Edinburgh; *Lon. and Ed. Journ. of Med. Science, July*, 1842.

Ulcer on the Thorax communicating with the Right Lung.—The patient was a woman of thirty-one years of age, of scrofulous diathesis. During winter, when confined with a disease of the hip-joint, she had had occasional paroxysms of cough, with slight hæmoptysis; but in March she had regained flesh and strength, when, unfortunately, she caught fresh cold and had a return of cough, with profuse expectoration and perspiration. In May a scrofulous ulcer, which she had previously been troubled with, broke out on the right side of the thorax, and, assuming a phagedenic character, laid bare a portion of the fourth and fifth ribs. On the 25th of May the author's attention was directed by the patient to a curious noise proceeding from the ulcer, and which, on examination, proved to proceed from the expulsion and entrance of air in respiration; showing that a communication existed with the lungs. On the morning of the 24th of the following month she was found lying in her bed with such a profuse hemorrhage from the ulcer, that the person who saw it described it as "pumping out" each time that the patient breathed or attempted to speak. She died in ten minutes after. No examination of the body was allowed.—J. S. Allen, Esq., of the St. Marylebone Infirmary; *Lancet, July* 30, 1842.

Interesting Case of Syphilis.—Mrs. B., a married woman and a mother, had an unhealthy-looking ulcer on the nipple, which, at one time was indolent, at another extended itself, and threatened to "excise" the nipple. An eruption subsequently appeared on the other breast, and on the scapula, along with a large ulcer on each tonsil. The eruption consisted of many roundish spots, of the size of sixpences, of a dusky copper color, constituting, as plainly as possible, that form of lepra described by Bateman as arising from venereal poison.

Some weeks before, a young woman had given birth to an illegitimate child, in the house of a mutual friend, Mrs. A. The woman either would not or could not suckle her infant, and Mrs. B. having at the time a child of her own at the breast, volunteered to give milk to the woman's infant, if brought to her house at particular hours. The child, a miserable creature,

soon died; and it was after this that Mrs. B., as above described, presented signs of venereal infection. But Mrs. A., who, though married, had never borne children, and could, consequently, never have suckled the servant-woman's child, presented an ulcer of the nipple also, along with an eruption, differing, however, from that of Mrs. B., (which was decidedly leprous), in being papular and covering the whole body.

On inquiry, it appeared that the infant of the woman had been covered with sores about the genitals and at every point. Yet the mother seems to have been healthy. It appeared also that the child, when sleeping with Mrs. A., had been used to apply its lips to her nipple.

Subsequently to the affection of Mrs. B., her own infant had a leprous eruption on the posterior parts, exactly similar to that of the mother. The author concludes: 1. That a diseased infant may be borne by a mother *apparently* healthy: which must be admitted to be extremely possible. 2. That such an infant may, by sucking, communicate the disease to sound persons. 3. That the disease so communicated, may be followed by secondary symptoms. 4. That the disease may be different in such persons. That the disease imbibed may be communicated by suckling.—George Lowdell, Esq., Lewes. *Med. Gazette*, June, 1842.

Remedy for the short-jointed Tape-worm.—Dr. S. recommends the following formula: R. *Cort. radicis punicæ granati* ℥ij., *aquæ* lb. ij., *macera per horas* xxiv., *decocque ad* lb. j., *adde syrupi zingiberis* oz. i. Two ounces of this to be taken every half hour until the worm is expelled. If the head become dizzy, which is not infrequent, after the fourth or fifth dose, it should be discontinued. It is quite necessary that the above should be made of the bark of the root, and not of the rind of the fruit: this latter appears to be totally inert as a vermifuge.—*Med. Chir. Review, from Dr. Streeten.*

On the Use of Inspissated Ox-Gall.—In the Medical Times of May 14th, 21st and 28th, is an interesting communication from Dr. Clay of Manchester, on the use of inspissated ox-gall. He says:

"I have had my attention for some time directed to this somewhat novel article of the materia medica, with a view to ascertain its powers as a medicinal agent, to what cases it appeared most applicable, and the best method of administering it. Gall of animals is by no means a new remedy, for I find its use spoken of by Boerhaave, and since his time by various writers; full justice, however, has not been done to its merits, it only having been tried in isolated cases, no one taking the trouble to test its powers by frequent experiments either on the same or different diseases. Boerhaave relates, 'that he has cured pale rickety children by pills made of the galls of the eel and the pike; that the medicine operated powerfully by urine; and that by its use the belly, before swelled, subsided surprisingly.' Lewis, in his Materia Medica, says, 'in want of appetite and other complaints proceeding from a deficiency of bile in the first passages, this animal bitter may probably be of more service than those of the vegetable kingdom usually directed in such intentions.' As an external application, ox-gall, combined with the camphoretted spirit of wine, has been often spoken of in rheumatism, sprains and bruises. From experiments made upon gall by Cartheuser, Baglivi, and others, it was found to be very soluble in water, sparingly acted upon by rectified spirits, rendering

oily, unctuous, or resinous substances, miscible with water; *it has the peculiar property of preserving milk from coagulating, or turning sour, or when coagulated immediately dissolves it again;* this last property deserves particular notice, and to which I intend to allude afterwards. So far as experiments have been instituted on the gall of animals, there does not appear to be any great difference in its composition, and as the gall of the ox is much easier to be obtained in large quantities, I have selected it as the object of the following experiments:—Dr. Peacock of Darlington remarked (Lancet, vol. i. 1836–7, page 398), that he had observed in a case of scirrhous or cancerous ulcer of the breast, and when the system exhibited an accumulation of bile, the pains accompanying such diseases (cancerous) were very greatly alleviated. In the case from which he drew this inference, during the progress of the disease, the patient was frequently attacked by the symptoms of jaundice, and invariably when the white motions and yellow skin appeared, there was almost entire relief from pain. Although Dr. Peacock exhibited gall in other cases, he does not give any decided opinion upon it, but augurs favorably and wishes its being further tested by others. Having some cases analogous, I determined on giving it a trial in such affections. before I proceeded to its trial in other diseases, towards the cure of which I fancied its powers more applicable."

In these affections he found it to relieve the pain in a remarkable manner, but the most valuable effects from the use of the ox-gall were observed in obstinate constipation from painter's lead, of which he gives five cases, and in dyspepsia, a well marked instance of which occurred in his own person; the history is as follows:

"I was myself laboring under dyspepsia, almost every kind of food became acid soon after being taken; I had violent headaches, constant pain in the epigastric region, and bowels very much constipated, many times three or four days without a motion; occasional relief, but of a very temporary nature, was obtained by the pilulæ hydrargyri. Had been subject to these symptoms, more or less, for seven or eight years, but which have been often very severe during the last three or four years. Purgative medicines always produced great irritation and uneasiness for some time after their exhibition. Under these circumstances I took two four-grain pills of the inspissated ox-gall, not having had any motion for nearly four days; the pills were taken at four o'clock in the afternoon, and at seven, without even the slightest sensation of pain, or the common feelings arising from having taken purgatives, I had a free and copious motion, the excrementitious mass being in a pulpy form, and perfectly free from the indurated character I had been so long accustomed to. I repeated the dose next day with similar results. I experienced not even the slightest feelings of uneasiness; indeed, had I not known the fact, I should not have supposed that I had taken medicine of any kind. The acidity immediately left my stomach, and when under its influence the pains in my head and stomach were removed, and my bowels are now quite regular. From taking occasional doses, of course its effects are not sufficiently tested; but I have experienced more relief, with less unpleasantness, than from any other of the many means I have ever resorted to; in fact, its value in dyspeptic stomachs is incalculable."

His formula of prescription is as follows:—R. Fel. Bov. Inspiss.; Ol. Carui.; Magnes. Carbonatis, q. s. ut fiat massa. M. Divide in pil. xxxvi., capiat ii. ter in die.—*Dublin Journal.*

SURGERY.

On the Mechanism of Spontaneous or Symptomatic Luxations of the Femur. By M. J. Parise.—The author has in this paper very clearly and fully illustrated the opinion that collections of fluid, serous, synovial, or purulent, in the hip-joint are the ordinary cause of the symptomatic dislocation of the femur. We believe he takes too exclusive a view of the matter, and too much disregards other causes of luxation, as well as those cases in which, though the femur is still in the acetabulum, there are yet the signs of luxation; but of this class of luxations by accumulations of fluid, we have not before read so good an account. We shall therefore extract the newest and most important parts of it.

He overthrows satisfactorily all the objections advanced against E. H. Weber's account of the influence of the atmospheric pressure in maintaining the head of the femur in its place, and then shows the influence of artificial injections of the cavity of the hip-joint in forcing out the head of the femur. His plan was to bore through the thinnest part of the acetabulum obliquely, and then to inject fluid into it; the quantity which the capsule would hold being from forty to forty-five grammes of water. The constant results were: 1st, the femur was carried in the direction of flexion, abduction, and rotation outwards; the flexion being equal to an angle of from 30 deg. to 35 deg. with the plane of the horizon, and the rotation outwards being very slight; 2d, the great trochanter was forced outwards, and separated from the anterior superior spine of the ilium, and from the symphisis pubis, for more than half an inch; and was, at the same time, forced downwards, so that the limb was elongated about half an inch; 3d, the capsule was not distended equally, but was especially enlarged near the trochanters; and lastly, the head of the femur was driven so far out of the acetabulum, that the distance of its summit from the bottom of the cavity (as measured on an injection which solidified on cooling), was upwards of two-thirds of an inch. The round ligament seemed to have but little influence on this displacement.

He relates an interesting case of a child twelve years old, in which it is quite clear that the luxation of the femur, where most of the signs of ordinary disease of the hip-joint had been present, was due to the accumulation of a serous fluid mixed with albuminous flocculi within the hip-joint. The cotyloid cavity and the head of the femur were uninjured, except that the latter was grooved by the pressure which it had experienced against the edge of the acetabulum. He believes that at a later period there would have been in this case the same disease of the bones and cartilages as is commonly seen in dislocations after disease of the hip-joint: [but this is, we think, very improbable; the femur and acetabulum would most probably have undergone only the same changes as after dislocation by external force. There is no proof here that the ordinary changes in diseased hips are, as the author suggests, consecutive to the dislocation.]

He enters upon a very elaborate yet clear account of the mode in which a fluid slowly secreted into the capsule of the hip-joint must act, and how it must produce (as is evident from his experiments already mentioned), first, elongation of the limb, real though but slight, and then the condition in which by the action of the muscles the femur may be drawn upwards and backwards. The peculiar positions of the limb, and the succession of their changes, he refers to three chief conditions: 1st. The dilatation of the capsule, which being inversely proportionate to the powers of resistance of its several parts, must be least in the situation of the accessory ligament on its anterior and inner aspect. This will restrain the movement of the head of the femur, which will therefore, as the capsule is distended, be carried outwards and upwards, while the shaft moves inwards and is flexed. 2d. The action of the pelvi-femoral muscles, of which those that lie next the capsule are like it distended by the accumulating fluid, and when they contract, since they all contract with nearly equal force, can have but little effect; while those which lie at a greater distance from the capsule, the adductors, glutei, &c. must by their contraction exercise an important influence in producing both the flexion and adduction, and, at last, the dislocation upwards and backwards of the limb. 3d. The position which the patient naturally assumes, and which is that best adapted for the avoidance of pressure on the diseased joint. For this purpose he inclines over to the healthy side, and flexes his thigh and turns it inwards, in order that it may rest more easily upon the other. At first, also, the round ligament assists in producing the flexion and adduction; and it resists, at the same time, the passage of the head of the femur upwards and backwards, but at length it gives way, and if the femur is pushed sufficiently outwards from the acetabulum, there is scarcely any thing to prevent the muscles from pulling it upwards.

Lastly, the author explains the changes which he supposes to take place in the head of the femur after its luxation; [but these we think (as we have already said) he overrates, by presuming that a mere collection of fluid in the hip-joint without disease of the bones or cartilages is a common occurrence.]—*Br. and For. Med. Rev. from Archives Générales de Médecine. Mai et Juin*, 1842.

Passage of Air into the Veins. By Dr. Asmus.—The author was removing a "steatoma" as large as the two fists from the region between the lower jaw and clavicle of a man forty years old, and was very carefully separating its base from the carotid artery with which it was in contact, when he accidentally opened the internal jugular vein, which had been pushed far from its usual place by a lobe of the tumor. No blood flowed; but on the instant he heard air enter the vein with a bubbling sound. He asked the man how he felt, who said "Well;" but in the next moment cried out "Its all up!" and began to be convulsed, first in the face, and then in the whole body. He sunk down, and at the same instant another bubble was heard; but still no blood flowed. Alternate convulsive movements and opisthotonos ensued; the face was deadly pale, the breath short, and death seemed close at hand. Rapid bleeding now took place from the wound, and a stream of black blood was seen to issue from the vein, but as often as the patient was convulsed, air again passed in, and the bubbling was distinctly both seen and heard. A ligature was as quickly as possible put upon the vein above the injured part,

and with this the bubbling ceased; the tumor was cut off level, and the patient was put to bed.

Syncope, alternating with severe convulsions, still continued; the pulse was not discernible, the heart seemed only to vibrate, and the respiration was short. Stimulants and a variety of restorative means were employed, and above twelve hours after the operation (in which the loss of blood was altogether moderate), the patient began to revive. His condition continued to improve, and he at length completely recovered. [This appears a well-marked case. At the time of opening the vein the patient had lost less than five ounces of blood, and the passage of air into the vein was distinctly observed by the eye and ear.]—*Br. and For. Med. Rev. from Medicinische Zeitung. Juin* 8, 1842.

Dr. Byron on Malignant Diseases.—After many detailed cases the author deduces the following conclusions:

1st. Malignant ulcer of the eyelid is, in its earlier stages, up to a period not yet defined, local, and admits of cure by local treatment only.*

2ndly. That it is usually a disease of advanced life, but is not confined to any temperament or condition of life.

3dly. This malady is rarely found combined or co-existent with other affections; on the contrary, its presence seems to exempt from any such liability. The sympathetic affection of the stomach, bowels and bronchi, already referred to, forms an exception to this rule.

4thly. Lupus, on the contrary, seems, in most instances, to have a constitutional origin, being, as already shown, found to follow from, or co-exist with, other affections, or disordered conditions of the system; moreover, it is most effectually checked by constitutional, combined with local treatment.

5thly. The difference, though well marked in several instances, between these two affections, is infinitely less apparent than between either of them and cancer.

6thly. The term "malignant" may be fairly questioned as being applicable to the earlier stages of ulcer of the eyelids; but it is absurd and inappropriate in the great majority, at least, of cases of lupus.†—*Dublin Journal, Sept.* 1842.

Case of Radical Cure of Hernia. By P. Bennett Lucas, Esq.—Some years since I was introduced to a medical gentleman, who arrived in this country from America, furnished with numerous testimonials from Professor Pattison and others, in support of his pretensions to cure hernia by the application of trusses. I witnessed some cases in which he certainly succeeded, and others received no benefit from the means which he employed. I was, however, so fully satisfied of the utility of his plan of proceeding, and that it was founded upon correct views of the animal economy, that I

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* The healing of the ulcers was so rapid in those cases where constitutitutional treatment was used, that no part of the cure could be attributed to it.

† Contrasting those affections with cancer, there is scarcely a point of resemblance between them; where, for instance, are the two never-failing symptoms of Paul of Ægina, "ægros maxime, fatigans et perpetuo fere dolore affligens?" Where is the contamination of the glandular system years after those affections have remained in a state of widely extended ulceration? And where are the examples of open cancer being cured by treatment such as was successful in the cases here recorded?

did not hesitate to apply a similar method of treatment to two cases of oblique inguinal hernia.

The subjects of both these cases were young men, one aged twenty-six years, the other thirty years. In the elder of the two the treatment failed, but was productive of no bad consequences. The case of the younger forms the subject of this paper.

Mr. A. B., aged twenty-six years, was vaulting into his saddle, when he felt a slight and sudden pain in his right groin, which extended down the outer side of his leg, and was accompanied with the sensation of something having given way. These feelings subsided in a few minutes, and he continued his ride as usual. On his return home he observed a small tumor in his groin, which he considered of so little moment that he continued his daily avocations for a month, and these were the contrary of inactive, before he applied to me.

When he was made acquainted with the nature of his disorder, he suffered great mental anxiety; from the apparent hopelessness of his ever being cured; and being a young man of some property, and an attractive person, and unmarried, he felt the necessity of wearing a truss, with as uneasy a mind as he did the danger which hourly attended his not doing so. At this time the tumor, which was a well marked, oblique, inguinal hernia, protruded at the external or anterior abdominal aperture for more than an inch, and was reduced with the utmost facility. It was an enterocele.

A truss of ordinary construction was applied in the usual manner, and at the end of a year the hernia was still present, protruding as usual when the truss was removed, and when the patient made any respiratory effort.

In this condition of affairs, it was proposed to endeavor to effect, by pressure, a consolidation of the tissues in the immediate vicinity of the posterior inguinal aperture, and thus to prevent a barrier to the protrusion of intestine. To the accomplishing of this end a truss was applied, which presented these peculiarities:—Its spring was powerfully strong, and its pad, or rather what corresponded to this piece of the ordinary instrument, was made of box-wood, and was conical, but blunted at its apex. The hernia was reduced; a silk handkerchief, folded three or four turns, was applied over the posterier abdominal aperture, and, with the handkerchief intervening, the truss was applied, its wedge being accurately fitted to the opening.

The curve of the truss did not consist of a single solid arc of steel, but of several plates of this metal, so that the amount of pressure could be regulated according to the feelings of the patient, by the removal of one or more of these springs.

This instrument the patient wore day and night for two months. At first he experienced some inconvenience from the firm pressure against the abdominal wall, and two of the steel curves were removed; after wearing the instrument in this degree of force for a few days, the removed arcs of steel were replaced, and at the end of six weeks the hernia ceased to descend.

A truss of ordinary construction, exerting little pressure, but rather support, and with a soft, flattened pad, was worn by the patient for some months. I hear occasionally from him; he tells me that he has left off his truss for more than a year, is married, and remains free from the disease. —*Dublin Journal.*

Malgaigne's Statistical Review of Luxations, taken from the registry of the Hotel Dieu Hospital, where the number of dislocations admitted during sixteen years amounted to 530.

1. Comparative frequency of luxations in the different months. From December to March, 204; from April to July, 150; from August to November, 176. (The cases of fracture were in the same proportion.)

2. Comparative frequency in the different ages:—

From	2 to 5	years,	1	disloc.	From 45 to 50	years,	51 disloc.
"	5 to 10	"	4	"	" 50 to 55	"	52 "
"	10 to 15	"	8	"	" 55 to 60	"	51 "
"	15 to 20	"	29	"	" 60 to 65	"	51 "
"	20 to 25	"	32	"	" 65 to 70	"	42 "
"	25 to 30	"	40	"	" 70 to 75	"	19 "
"	30 to 35	"	48	"	" 75 to 80	"	13 "
"	35 to 40	"	38	"	" 80 to 90	"	4 "
"	40 to 45	"	45	"	" 90	"	1 "

3. Frequency of luxations in the different ages during summer and winter. From 2 years to 25 years, most cases occurred in summer; from 25 to 45, most in winter; from 45 to 55, one third more than in summer; from 55, about one half more.

4. Frequency of cases in the different sexes: 395 males, 135 females.

5. Frequency of cases in different ages in both sexes. In children and advanced age numbers were equal.

6. Frequency of cases in the right and left side (where the side was known): fifty times in the right, and thirty-nine in the left side.

7. Frequency of cases in the joints, in 491 cases, as follows:—

Humerus,	321	Clavicle,	33	Ulna,	26	Radius,	4
Carpus,	13	Thumb,	17	Fingers,	7	Femur,	34
Patella,	2	Foot,	20	Inferior maxilla,	7	Vertebræ,	1
Knee,	6						

8. Influence of age in each particular luxation. The frequency of luxations of the shoulder was, in proportion from 2 to 15 years, as 1 to 4; from 60 years, as 1 to 1½. Luxations of the clavicle were almost all confined to adults; those of the ulna were confined to the young; half the cases were from 10 to 20 years; from 54 upwards, not one case. Out of sixty-seven luxations of the thumb, twelve occurred in winter, five in summer; sixteen in males, and one in female; from 30 to 40 years they are most frequent. Of thirty-four luxations of the femur, eighteen occurred in the winter, sixteen in summer; twenty-six in men, eight in females; they were most frequent in adult age.—*Gaz. Med. de Paris.*

Deafness cured by the Endermic Use of Morphia.—As there is no set of complaints which medical men are so puzzled to know how to relieve as those connected with hearing, we are always ready to receive a hint that may prove useful in some cases, provided it comes from a respectable man who is not an advertising aurist. The name alone of Dr. Hoebeke, the narrator of the following case, is a sufficient guarantee for its truthfulness.

A lady had become so deaf after an attack of fever, that she could not distinguish a word, unless it was bawled into her ear by applying the mouth close to it. But along with the deafness there was always an incessant noise in the ears—at one time like the hissing of boiling water, at

other times like the roaring of a hundred voices together—which was often so distressing as to cause headache and confusion of ideas. These feelings were always worse when the head was on the pillow. There was a quantity of wax in the ears; but no relief was obtained when it was removed. Nothing irregular could be perceived either in the ears themselves or in the throat. Leeches were applied behind the ears, and emetics and purgatives given; but no relief followed. Supposing that the symptoms might be dependent upon some anomalous state of the nervous apparatus, a blister was applied behind each ear, and the excoriated surface was sprinkled with half a grain of sulphate of morphia. By the next day the noise and deafness on the left side had quite ceased, and on the right had much abated. The headache, too, had disappeared.

As the unpleasant feelings still continued on the right side, a second blister was applied and treated in the same manner as before with morphia. The success was decided, and the patient was quite freed of all her annoyances.—*Archives de Med. Belge.*

Remarks.—The medical man often meets with cases very similar to the preceding, and, in not a few, every thing they try is unhappily without avail. How far the remedy proposed by M. Boeke will answer in many of these, we must leave to the experience of our readers to decide.

We may state that we have occasionally in such cases used with advantage a belladonna plaster, applied either to the temple, or behind the ear of the affected side. Many of the complaints of hearing seem to be exceedingly influenced not only by the state of the general health, and especially by that of the stomach, but also by the quietude or irritability of the temper, as well as by the varying conditions of the atmosphere. No wonder, then, that we are so often foiled in relieving them.—*Med. Chir. Review.*

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

On the Management of Cases of Prolapsus of the Funis. By Professor Osiander, of Gottingen.—After a brief historical sketch of the various plans which have been adopted for the management of this accident, Professor Osiander relates several cases in illustration of the method of treatment to which he gives the preference. He sums up with the following rules, in estimating which, however, the partiality of the Professor for the long forceps must not be forgotten. He observes that the possession of a pair of forceps at least sixteen inches long is indispensable to the successful practice of midwifery. Professor Osiander's conclusions are:

1. Manual intervention is not required in every case of prolapse of the funis beyond the os uteri. It very frequently happens that the head passes beyond the funis, and that labor is terminated without any accident, though the case is left entirely to nature.

2. When the conditions are favorable, that is to say when the child is of moderate size, when the structure of the parts is natural, and the pains are effective, it is best to leave the case entirely to nature. Moderate pressure on the cord is seldom dangerous in these cases any more than when the funis is twisted round the child. At the most, if the process of labor is slow it may be proper to apply the forceps.

3. Turning should not be resorted to unless some other circumstance

than the prolapse of the cord renders it necessary. The old axiom that in all cases of funis presentation the child is to be turned, is as ill founded as it is mischievous.

4. Cessation of pulsation in the cord is not a certain sign of the death of the fœtus, and is rather an indication for hastening delivery than a reason for neglecting the condition of the child.

5. Attempts to replace the prolapsed funis within the uterus are seldom indicated; but on the contrary are almost always fruitless, while they are likely to interrupt and arrest the process of labor. If, however, the funis is low down in the vagina, or has descended out of it, it must be replaced, and retained within it by a sponge, a compress, or other means, since the action of the cold air interrupts the circulation in the cord, and occasions the death of the fœtus.—*Br. and For. Med. Rev. from Neue. Zeitschrift fur Geburtskunde.* Band xii. Heft i.

Experiments on the best Agent to be employed in cauterizing Ulcerations of the Cervix Uteri. By M. Lisfranc.—Two agents have hitherto been employed indifferently for this purpose—the solid nitrate of silver, and a brush dipped in the acid proto-nitrate of mercury, both of which remedies have brought about the cicatrization of the ulcers. M. Lisfranc has recently instituted experiments with a view to ascertain the comparative merits of the two applications. From these experiments it results that cauterization with the acid nitrate of mercury has seldom excited any discharge of blood, while blood frequently flowed in greater or less quantity after the employment of nitrate of silver. From this fact the inference would be that whenever the ulceration is accompanied (as is frequently the case) with a certain degree of engorgement of the body of the uterus, the nitrate of silver must not be used.

This statement of the comparative effects of the two caustics is supported by the results of 72 cauterizations of the cervix uteri, 44 of which were made with the nitrate of silver, in 31 of which there was a discharge of blood afterwards, while that occurrence took place in 3 only out of 28 instances in which the acid nitrate of mercury was employed.—*Bull. Gen. de Therapeutique.*

Pneumonia in Children.—The frequency and fatality of pneumonia in childhood, as contrasted with advanced life, form very interesting subjects of consideration. The following extracts from a report of the registrar-general of deaths, throw an important light upon the subject. The deaths of the metropolitan district are divided into three classes—those under 15 years of age, between 15 and 60, and above 60. One table is a return for each of five weeks in January and February, 1840. Under "pneumonia" the total of these weeks is as follows:—Under 15 years of age, 257; from 15 to 60, 73; above 60, 30. How far this remarkable difference is owing to a less energetic treatment it is not easy to say, but I fear that a false tenderness in treating the disorders of infancy mildly, is partly the cause; and that when practitioners adopt more decided efforts we shall see a great improvement in this respect, for pneumonia, when fatal in infancy, very rarely is found to have advanced beyond the stage of hepatization, whereas the reverse of this is generally observed in adults.—*Dr. J. F. Duncan, Dublin Journal.*